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ABSTRACT

To develop and evaluate methods and techniques for the utilization of the principles of behavior modification in the education of behaviorally disordered children in the public schools, eight boys (ages 7 1/2 to 10 1/2, IQ range 84 to 116) constituted an experimental special class group. Their program emphasized bringing under control deviant social behaviors through reinforcement and time out periods. Academic gains were not satisfactory after 1 year, and the program was expanded and revised to place more stress on academic progress. Evidence was found that the second year's program was more effective in modifying conduct and in increasing academic achievement. Research was also done in resource rooms, showing this arrangement to have advantages suggesting greater cost-efficiency than the special class, and in fact resource rooms using behavior modification techniques were found to be the most cost effective, currently available method for the treatment of behavior problem children in public schools. (RJ)

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THE EDUCATION OF BEHAVIORALLY DISORDERED CHILDREN IN THE PUBLIC SCHOOL SETTING

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October, 1970

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Erratum

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Paragraph 3, sentence 3 should read as follows:

An analysis of variance revealed significant differences between the experimentals and controls in all three schools in Reading Vocabulary ($F=8.2$, df 1/109, $p < .01$), Total Reading ($F=7.8$, df 1/109, $p < .01$), Arithmetic Fundamentals ($F=23.1$, df 1/60, $p < .01$) and Total Arithmetic ($F=7.5$, df 1/60, $p < .01$). Reading Comprehension differed at a level approaching significance ($F=3.0$, df 1/109, $p < .10 > .05$).

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The Education of Behaviorally Disordered Children in the Public School Setting

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Philadelphia, Pennsylvania

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The research reported herein was performed pursuant to a grant with the Bureau of Education for the Handicapped, U.S. Office of Education, Department of Health, Education, and Welfare. Contractors undertaking such projects under government sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official position of the Bureau of Education for the Handicapped.

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Summary

The major purpose of this project was to develop and evaluate methods and techniques for the utilization of the principles of behavior modification in the education of behaviorally disordered children in the public schools. During the course of the project methods were developed and tested for use with groups of children in both the self-contained special class and the resource room. Evaluation, by either own-control or contrast groups designs, indicated that the experimental classroom programs were successful in changing social behavior and in increasing academic achievement. The resource room model for service delivery was found to have advantages suggesting greater cost-efficiency than the special class.

Within the context of the project an observation schedule for classroom behavior was developed and validated and studies were completed on the relationships between academic skills and disordered behavior.

The project also served to point-up certain problems related to both research and our operational use of behavior modification techniques in the public school classroom as well as the use of various types of instructional materials.

The overall results of the four years research suggest that the use of behavior modification techniques within the context of the resource room is the most cost-effective method for the education of the behavior problem child in the public school currently available.

CHAPTER I

Review and Introduction

At the time (1965) that the research project described in this report was being planned, a number of forces were at work which were to influence the education of the disturbed child. First of all, there was an increasing concern among educators in regard to the disturbed child in the classroom. Public schools were being called upon to develop programs for emotionally disturbed children by both parents and professionals. In some states programs were being mandated by legislation.

While many established programs had heavily utilized the services of mental health agencies, issues related to the place of efforts beyond that of classroom programming in the rehabilitation of the behaviorally deviant child were of increasing concern. It had become apparent that while traditional psychotherapy for the child and casework-counseling for the parents might be a desirable ideal, limiting school programs to those children and their parents who could cooperate with, and in many instances pay for such services would effectively deny the remedial efforts of the public school to the majority of children in need. Thus, the development of educationally based and school centered approaches not dependent upon sources outside the capability of most public schools to provide help was of high priority.

Concurrently there was an increasing dissatisfaction with traditional psychodynamic approaches to the remediation of the problem child both within mental health and education. The application of techniques deriving from the psychodynamic conception of behavioral disorder in the classroom seemed to some to be of questionable utility. The necessary education of the child in subject matter skills too frequently took second place to "personality change" if, in fact, it had a place at all. Furthermore, the effectiveness of psychodynamic methods when used in the clinic could be seriously questioned (Levitt, Beiser & Robertson, 1959; Levitt, 1963).

An alternative approach to behavioral change utilizing the principles and techniques of operant conditioning appeared to have promise. However, published empirical research on the efficacy of these techniques with the disturbed child in the public school setting were limited to a small number of studies (e.g. Zimmerman & Zimmerman, 1962; Patterson, Jones, Whittier & Wright, 1965) in which a single deviant child in a classroom had been the target of a behavior modification program. In fact, a study by our research group (Quay, Sprague, Werry & McQueen, 1967) appears to have been the first demonstration of the use of operant principles with a group of hyperactive children in the public school special class.

The heterogeneous nature of emotional disturbance was recognized, and dissatisfaction with the concept on a basis for educational programming was beginning to be expressed. The existence of a relatively small number of homogeneous dimensions of deviant behavior subsumed by this generic label had already been shown (e.g. Quay, Morse & Cutler, 1966) and one of us (Quay, 1963) had argued for the use of these dimensions as a basis for differential educational programming.

It should also be noted that the popularity of the self-contained special class as a vehicle for service delivery to the exceptional child, grouped according to traditional disability labels, was perhaps at its peak during the years 1965-67.

It was against this background that our program of research was conceived. The overall objective was to develop and evaluate techniques for the application of operant principles to the education of the emotionally disturbed child in the public school classroom. The essential goal of our effort was to develop an educationally based classroom program which: 1) would remediate a wide range and severity of deviant social behavior and academic underachievement with only minimal recourse to resources outside the school, 2) which was not dependent upon parental participation in any form of therapy and 3) which could be implemented by a public school at a reasonable cost.

Within the context of these broad objectives and goals a variety of specific issues and problems demanded study. Some were derived from theory about the varieties and nature of emotional disturbance in children, some were almost totally technological in character. Among the technological problems were: 1) how can hyperactivity be decreased and attending behavior increased as a necessary precondition to effective academic learning, 2) how can social skills be taught to children whose repertoires are oversupplied with behaviors aversive to others, 3) how can academic tasks be sequenced so that peers reinforce one another for positive rather than negative behaviors, and 4) what kinds and schedules of reinforcement are necessary to maintain acceptable response and accuracy rates for an entire classroom.

More theoretical questions were posed in regard to the interaction between the primary behavioral characteristics of the disturbed child and various facets of the behavior modification process. For example, children whose behavior could be characterized as principally that of the conduct problem type (e.g. Peterson, 1961; Quay, 1964; Quay, Morse & Cutler, 1966) were hypothesized to be only minimally responsive to social reinforcers (Johns & Quay, 1962; Levin & Simmons, 1962) but perhaps to be rewarded by novel and diverse sensory inputs (Quay, 1965). In contrast, children exhibiting anxious-withdrawn behavior were thought to be overreactive to social reinforcers, particularly of an aversive nature. Thus we wished to study empirically the effectiveness of certain reinforcers with certain kinds of children. And beyond that, the extent to which all children could be taught to be responsive to the reinforcers natural to the classroom setting.

Also of more theoretical interest was the extent and specific nature of academic retardation and/or learning disability in the two principal types of emotionally disturbed children. Would data on achievement in reading, arithmetic and spelling show different patterns for the two groups and if so, why. All manner of theoretical speculation was possible based on the differential effects of anxiety on various academic subjects.

Derivative problems, larger in scope, involved the generalization of effective behavior from the special class into the regular class, the training of both special and regular teachers in specific techniques of remediation and the involvement of parents in an overall program for the deviant child.

As will be evident in later chapters many of these specific problems were attacked directly, some appeared to defy real analysis in ongoing classrooms and some were simply found to be outside the scope of our energies and resources.

Looking ahead a moment it will also be evident that some of our concerns changed during the course of the four year program. We became less concerned with attacking deviant social behavior directly and more concerned with an immediate concentration on academic underachievement. We became increasingly cognizant of the role which curriculum and materials must play in the overall classroom program. We became disenchanted with the self-contained special class as a cost-effective model for service delivery. And we became all too aware of the limitations of a number of experimental designs in classroom research.

In the next chapter we will discuss two methodological problems with which we were immediately confronted; on what basis to select subjects and how to measure change in relevant behaviors in the classroom.

Chapter II

Selection and Assessment

Among the myriad of methodological problems with which we were confronted at the outset were two of great importance: (a) selecting from among regular class children those who were in need of special class (or later, resource room) service; and (b) evaluating the responses of children to the program with respect to social behavior.

Diagnosis of Disturbance

The process of selection of children for placement in special classes for the emotionally disturbed is frequently specified in State educational codes. It usually involves a psychiatric or other medical opinion with a psychiatric diagnosis based on a synthesis of information provided by the school system (reports by teachers, school psychologists, and school social workers) supplemented by interviews with the child and/or parents. Generally speaking, the approach to diagnosis is "disease entity" oriented rather than being concerned primarily with either specific behavior problems or homogeneous clusters of deviant behaviors which may characterize a dimension or category of behavioral disorder.

Our needs were twofold. We required an observational quantitative assessment of the child in terms of a variety of deviant behaviors at the "trait" of principal dimension level (e.g. impudence, irresponsibility, feelings of inferiority) for two purposes; the testing of theoretical notions in regard to the interaction of these dimensions with various remedial strategies and to provide a means whereby the behavioral characteristics of our children could be summarized in nomothetic terms and thus permit comparison with the children studied in other programs.

We also required an assessment of children on specific deviant behaviors relevant to improving classroom functioning. The needs here were for a means of measuring those particular behaviors in need of change and of assessing their change on a day to day basis as remedial techniques were applied.

As a solution to the problem of trait level assessment we chose the Problem Behavior Checklist (Quay & Peterson, 1967). Developed out of a series of factor analytic studies of the ratings of deviant behavior in children by teachers, parents and other adults (e.g. Peterson, 1961; Quay, 1964; Quay & Quay, 1965; Quay, Morse & Cutler, 1966) the checklist provides a method for assessing an individual child on three dimensions of deviant behavior: conduct problem, personality problem and inadequacy-immaturity. The checklist can be used reliably by teachers, parents and others in a position to observe the child. Normative data is available on a variety of populations (Quay & Peterson, 1967; Speer, 1970; Quay & Parsons, 1970). Containing 55 items describing deviant behavior traits, the checklist can be completed by the average teacher in about five minutes.

The assessment of specific deviant behavior

To assess the frequency of specific deviant behaviors in the classroom and to permit measurement of day to day changes therein, Becker, Madsen, Arnold & Thomas (1967) had developed a frequency counting method of observing classroom behavior in elementary school children. The technique reported on below is basically that developed by Becker and his colleagues refined, elaborated and evaluated during the first two years of our research.

The method is a behavior frequency counting technique in which one child is observed for a period of time which is broken down into subunits or "cells" of a 20 seconds duration during which behaviors are noted as occurring or not. Since children's behavior in the classroom is greatly influenced by the situation (individual or group, structured or free activity, etc.), it is prudent to sample either all the situations or one particular situation only. The authors opted for the latter, restricting observation to individual academic seatwork since this is both one of the most demanding situations for the child and one of the most academically relevant. It has the further advantage of being the situation in which the classroom rules are most explicit and most likely to be enforced, thus minimizing ambiguity about what can be classified as "deviant."

The instrument consists of three categories of behaviors: (a) deviant behaviors, (b) attending or work-oriented behaviors, and (c) teacher pupil interactions. Each of these categories is further subdivided into subitems, some of which are mutually exclusive and others not, giving a total of 14 separate items detailed in Tables II-1 and II-2. The definition of the items and the method of observing are set out in Appendix I.

The following points should be emphasized: First, understanding what constitutes deviant behavior presupposes some knowledge of the rule system operating in a particular classroom so that behaviors may be classified as deviant or permissible. Second, neither the items, the duration of the cells of observation (20 seconds), nor the total length of period of observation (15 minutes) should be regarded as unalterable. Third, because of the high variability of children's behavior throughout each day and from one day to the next, it is desirable to sample as long a time period of the child's behavior on as many occasions as is practicable and then to combine the data into some kind of aggregate score or mean which will help to contribute to the stability and hence validity of the measures, particularly for diagnostic purposes. Finally, observers should be carefully instructed not to interact with children or teachers but to regard themselves as a "piece of classroom furniture." Under these conditions children will rapidly become habituated to the observer and apparently behave as they would under normal circumstances.

Reliability of the Method

Table II-1 sets forth item reliabilities as obtained by 145 pooled paired observations by six observers obtained over the 1966-67 school year. Reliability was calculated from the total scores for the 15 minutes of observation rather than by individual cells since this total score is, in a manner rather analogous to that of the full scale IQ on the WISC, the score of interest. Reliability was figured in two ways, first by the Pearson product moment correlation coefficient (r) and second by a mean ratio agreement obtained by dividing the smaller of each pair of observations by the bigger, converting to percent, and then calculating the mean for the 145 paired observations (Hawkins, Peterson, Schweid & Bijou, 1966). The correlation coefficient has two defects. First, if observer makes a constant error of over- or underestimation this would, though yielding a high value of r, sharply reduce the value of any absolute score. Second, if an item occurs very infrequently (as for example with physical contact) the r may be spuriously low. The item "zero pairs" in Table II-1 is a record of the number of times that both observers recorded a total score of zero for a particular item and serves to indicate why the r for a particular item (e.g. daydreaming), may be very low.

Considering the number of observers involved and the long period of time over which the observations were collected (there was little supervision of the observers after their initial instruction in the method), the reliabilities must be considered to be highly satisfactory. It is, of course, nevertheless advisable for any one who intends to use this method to check out the reliability of his particular observers.

While we had no opportunity to assess the validity of the observational method prior to the initiation of the classroom research data relevant to the method coming from our special class program follows for purposes of completeness.

Validity

In Table II-2 are set out some data obtained on (a) conduct problem children under three conditions: in the spring of the first year of the program (1967), in the late winter of the second year of the program (1968), and on a group of children in their regular classroom prior to their admission to the special class (preentry): and (b) a group of normal subjects carefully matched with the 1967 group for CA, IQ, social class, and ethnic group and observed in their classrooms at the same time of year. The group means are based on individual means for each child derived from about 40, 40, 10, and 20 observations per child, respectively, in each of the four groups.[2]

The mean age and the age range for each of the four groups are given at the bottom of Table II-2. The 1967, 1968 and preentry conduct problem groups each probably share about 50 percent of the same children with one or both of the other groups, though the date and/or circumstance of observation differed. The ethnic composition of the groups was almost 50 percent Afro-American (expected frequency in the school district was 13 percent) and drawn predominantly, though by no means exclusively, from the lower socio-economic groups. This illustrates that special classes for the emotionally disturbed can serve a group of children not reached by traditional mental health services and thus can offer a unique treatment resource.

General Observations. Although the absolute and relative frequency of the 14 items will obviously vary greatly from classroom to classroom depending on the number of children present, the skill of the teacher, her place on an authoritarian permissiveness dimension, etc., some remarks seem nevertheless in order. Physical aggression and daydreaming appear to be extremely infrequent behaviors under any circumstance, while a significant proportion of deviant behavior in the classroom is nonspecific (termed "other deviant"), taking the form of either particular idiosyncratic habits or, more commonly in this study, a variety of behaviors which, while not grossly deviant in themselves, may be classified as "not working." Such behaviors encompassed a wide range of minor annoying and irritating behaviors such as doodling, fiddling, playing with toys, reading comics, etc., perhaps best described as passive aggression rather than outright conduct type problems. Normal children who resembled the 1967 conduct problem children apparently spent approximately three-fourths of their time during academic seatwork with their eyes focused on their work (which is not the same as saying that they spent three-fourths of their time working). Under these conditions they received or sought contact with the teacher extremely infrequently or, in short, appeared to be capable of working largely on their own. The standard deviations which, in many instances are almost as great as the mean, attest to the great variation in scores of individual children.

Normal versus conduct problem children. The comparison between the two matched groups, normal (in the regular class) and 1967 conduct problem children (in the special class), yielded surprisingly few differences. Generally speaking, the conduct problem children had a tendency to be somewhat more deviant, noisier, and more passive aggressive. The greater frequency of the 1967 conduct problem children being isolated from the class reflected the differences in handling of severely deviant behavior in the experimental program. These children were almost as attentive as the normal children but enjoyed a positive surfeit of teacher attention. At this period in time teacher contact was not further broken down into the nature and quality of the interactin as it was subsequently in the 1968 and preentry groups. Thus, it may be said that for whatever reason, be it program or simply increased availability of the teacher, the classroom behavior of the 1967 group differed but slightly from a group of children in the normal classroom.

This would be a matter for some satisfaction if it could be established that the children had originally been different from normal children, i.e., emotionally disturbed. Support that this was indeed so can be seen from the comparison between the data obtained on conduct problem children in the regular classroom prior to their entry into the special class program. In comparison with normal children, conduct problem children were clearly different and would seem to be referred for running around the classroom, noisiness, talking, and generally not working. Their attention to their work was substantially less than that of the normal children (74 versus 54 percent). Despite this disruptive behavior and failure to work, the conduct problem child nevertheless succeeded in capturing an inordinate amount of the teacher's attention which was, interestingly, mostly of a positive kind and initiated by the teacher. What these data do not show, however, is that most of this positive teacher initiated interaction occurred when the child was engaging in disruptive deviant behavior and no doubt reflects the commonly held attitude that the bad behavior of emotionally disturbed children must be understood rather than extinguished. The variance shows too that some children got a great deal of attention while one or two got practically none.

The fact that the children in the preentry conduct problem group were, on the average, one year younger than the normal children and were not otherwise matched with the normal children requires that all these findings not be accepted without some reservation.

The three conduct problem groups. Although deductions from the data are somewhat hazardous here as in other instances (except the two matched groups--normal and 1967 problem children), comparison between the data for the preentry, 1967, and 1968 conduct problem children would suggest that the special class program was capable of producing a substantial change in the behavior and that the 1968 program tended to be superior in this respect to the 1967 program (see Glavin, Quay & Werry, in press). Furthermore, in some respects--notably attention--the 1968 program may have been capable of eliciting a performance in the conduct problem children which was superior to that of normal children. Of course, neither the durability of this behavior change, its generality outside the special class situation, or the variables producing this change can be deduced from the data.

Sensitivity to Acute Interventions

One proof of the utility of the technique as a means of evaluating a child's progress on an ongoing basis would be if it could be shown that acute powerful interventions produce rapid and reversible changes in some of the items. In Figure II-1 are set out the data accumulated in a double blind study of psychotropic medication detailed elsewhere (Werry, 1968) in which it was shown that the method appears to have utility as a means of assessing drug effects in the classroom situation. One subject showed such a dramatic response to medication that the teacher was able to adjudge without any difficulty when the child had failed to take his medication. One item of behavior, "on task" -or attention to work- on the part of this subject over practically the entire school year has been set out in Figure II-1. During the first 10 weeks of school the subject gradually deteriorated and was not improved by administration of a placebo at the eleventh week. With the administration of medication (methylphenidate followed by phenobarbital) his attention to his work climbed dramatically and continued at a high level (mostly in excess of 77 percent) throughout the rest of the school year except during the twenty-third week when an identical placebo was substituted without the knowledge of the child, teacher or observer. This resulted in a precipitate deterioration in the child's attention which was again rapidly reversed upon reintroduction of medication.

Independence of items

In Table II-3 two correlation matrices, each from a total of approximately 600 observations obtained from the 11 children in the two conduct problem classes throughout the 1966-67 school year, are set out. Items which were either essentially reciprocals of other items (such as "no deviant," " irrelevant activity") or extremely infrequent ("physical contact," "daydreaming") and for which consequently the coefficients were all very small, have been omitted.

Generally speaking there was good consistency between the two samples. With the exception of "other deviant" which had modest correlations with "noise" and "turns", the deviant behavior items appeared independent of each other, thus demonstrating that they should be worth observing separately. As might be expected, the correlations between "on task" and the deviant behavior items appeared to reflect the ranking of the latter's frequency in the 1967 and 1968 samples (Table II-3) with the exception of "isolation," which is necessarily always incompatible with being "on task."

"Teacher contact" did not show any sizable correlations with any of the deviant behaviors, "no deviant," or "on task" items as one might have expected had the teachers been screening out deviant behavior and responding to good behavior. The high correlation between "on task" and "no deviant behavior" raises some question about the usefulness of separating these two categories. Becker et al. (1967) did not make such a separation though it should be noted that the common variance is only 50 percent, which is perhaps not surprising since conduct problem children can be noisy or otherwise irritating while still apparently working.

Chapter III

Research in the Special Class Setting

As plans were made to implement the first year of the research, a number of problems bearing on both the research design and operation of the experimental classroom program became apparent. Because of a lack of firm knowledge and a set of techniques upon which to design an initial classroom program, we chose to begin each class with three or four children, rather than the usual special class size of eight to ten for the behaviorally disordered. It was also thought that if the behavior of the initial four could be adequately shaped, they would serve as a good model for those who entered later. This decision was also influenced by the fact that our two experimental classrooms constituted the only in-school resource for the district in which we were operating. For this reason, we had to be prepared to accept referrals during the course of the year as children became serious problems in the regular classes of the eight elementary schools in the district. The net effect of this "free access" policy was to provide only a very small pool (the initial children) to whom the usual baseline-treatment-baseline design could be applied. During the course of the school year children entered the two classes during whatever experimental phase the classroom happened to be in at the time.

The realities of being physically in and a part of an ongoing public school also exerted its influence in other ways. Our initial (and later) referrals were the most disruptive children in the system. Some of them had presented serious management problems for one or more years. For some children our experimental classrooms were clearly the last recourse prior to expulsion. For better or for worse, we had acquired a responsibility to our children and the school system as well as to our research design.

One effect of these responsibilities was to make us very reluctant to prolong a no-treatment baseline period as it became quickly apparent that we were losing what little control we had over our children within the first few days. Our service obligations also made us understandably reluctant to intersperse prolonged return-to-no-treatment periods among the intervention periods. These considerations, coupled with the high frequency of deviant behavior our children were clearly capable of exhibiting, made such procedures as contingency reversal and differential reinforcement of other behaviors clearly unacceptable. Parenthetically, it should be noted that it was these constraints, plus others related to experimental designs used in operant research which lead us later to the use of the classical experimental vs. control group design.

An additional constraint imposed by our "public school" orientation made us reluctant to modify the classroom-wide experimental reinforcement system better to suit any individual child. We constantly reminded ourselves that the end product of our efforts should be techniques applicable in the public school special class unsupported by a research team or research funds and it seemed that this could be best achieved by as simple and uniform a system of behavior control and shaping as possible.

The General Design of the First Year's Research (1966-67)

The Children

As noted above children were referred to the project from the elementary schools in the district. Referrals were controlled by the Director of Special Services who prescreened the children to insure that those examined by project staff were likely to present severe conduct problems. Psychological and psychiatric examinations as well as case histories were accomplished by project staff. Eight children (all male) constituted the experimental group, although five other children including one girl participated briefly toward the end of the school year. All children met the traditional psychiatric criteria of emotional disturbance of the hyperactive aggressive variety. Ages ranged from 7 years, 5 months to 10 years, 5 months; three were black, eight were white. Binet (or WISC) IQ's ranged from 84 to 116. While occupation of the father ranged from laborer to college professor, the majority of families would be considered to be lower middle class. The majority of the 8 children had been in a pilot special class program in the previous year (1965-66).

The severity of conduct problem behavior in these children is attested to by their mean of 13.6 (SD=4.0) on the conduct problem scale of the Problem Behavior Checklist. This compares to a mean of 4.20 (SD=4.64) for a large sample of eight year old males in the same school district (Quay & Peterson, 1967), a mean of 5.73 (SD=5.94) for a sample of 219 normal males age 5 to 16 reported by Speer (1971) and a mean of 12.60 (SD=8.20) for a sample of 129 child guidance clinic cases also reported by Speer (1971). On the other hand the personality problem (anxiety and withdrawal) scale scores for the group fell within normal limits (mean 2.40, SD=1.50).

Academic skills at entry into the program ranged from beginning first grade to middle fourth grade. With only one or two exceptions, the children were functioning below expectation based on age and ability.

Program Philosophy and Operation

The severity of the hyperactive, aggressive behaviors displayed by all of the children led us to emphasize the bringing under control of deviant social behaviors as the prime objective of the classroom program. Our feeling was that concentration in the reduction of grossly deviant behaviors (e.g., out of seat, talking out, disturbing others) was a necessary step toward involving the children in productive academic activity. Our concern with social behavior led us to adopt the behavior observation schedule described in Chapter II as our principal dependent measure.

The school day ran from 9:00 a.m. until 2:30 p.m. (in contrast to the half-day program that appeared to be prevalent at that time in special classes for the emotionally disturbed) with the 9:00 to 11:50

hours devoted to academic work. Supervised recreation was provided over the noon hour with the afternoon period devoted to arts, crafts and music.[3]

Children were grouped into two classes primarily on the basis of age. Each class was taught by a teacher and a graduate assistant teacher. The teacher of the class of younger children had had two years prior experience with disturbed children with one year of that experience in a class which utilized operant principles to some degree. The teacher of the older group had had experience with the retarded but not with the disturbed.

Since it was felt that it would be easier to explicate and enforce rules of conduct as well as to get basic observational data, emphasis was on individual seat work. Instruction was of necessity individualized and required a constant flow of materials for each child. Providing such materials became a major problem for teachers and their assistants and in retrospect no doubt contributed somewhat to the lack of academic gains by the children as noted below.

Continuous consultation was provided the teachers during the course of the year by the research staff, the greatest emphasis again being on control of deviant behavior with less concern for curriculum and learning material problems. As might be expected consultation had to be much more intense and direct at the beginning of the year until the teachers became confident and more skilled in behavior control.

Reinforcement Delivery

Two methods of delivery reinforcers were utilized. In the classroom for the older children, reinforcers were delivered in the form of points which were earned by and equal in number to minutes spent in acceptable activity. On the wall in the front of the classroom were mounted clocks with sweep second hands, one for each child. The clocks could be activated from the teacher's desk by means of a switch. When the morning work period began all clocks were set at twelve noon. When a child began working, his clock was turned on and remained on as long as he continued to work. If he stopped work or otherwise indulged in unacceptable behavior, his clock was stopped. At the end of the first morning work period, prior to recess, the minutes accumulated on each child's clock were tallied and entered into a record book kept by each child. After the recess clocks were again reset to twelve o'clock and the procedure repeated for the second work period lasting until the lunch hour. What appeared to be a creative way to utilize peer pressure namely the use of a "class clock" which ran only when all individual clocks were active, did not prove effective. This failure seemed to be due to an absence of any group identity or concern for others; a characteristic of extreme conduct problem children.

Points earned were backed up by a host of tangible reinforcers such as toys, candy, and cookies. The choice of these back up reinforcers proved no easy matter. Items considered attractive by adults often did not prove of interest to the children. Even when children were asked to select items for the "store," it did not follow that they sold any better. An initial tendency by staff to buy unnecessarily expensive or complex items resulted in the accumulation of a lot of slow moving stock. Generally speaking lower priced simple trinkets proved most popular as well as most economical. Trading in of points was first permitted prior to lunch and just prior to the end of the school day. During the course of the year point values of various items were increased which in effect decreased the ratio of reinforcement. In addition, exchange was limited to one per day, just prior to departure thus increasing the delay in receiving the tangible reinforcer, as well as proving less of a disruption to classroom routines.

In the class of younger children, since they had difficulty counting minutes on clocks and with large numbers, stars posted on individual cards served as token reinforcers. Stars were earned by completion of assignments or by appropriate social behaviors during a given time period. When a card was filled with stars it was exchangeable for tangible reinforcers appropriate to these younger children. The use of the card greatly simplified the numerical concepts required and thus was more successful with this group.

Crisis Intervention

In addition to these token systems, time out from reinforcement procedures were employed in both classes as a behavior control mechanism. Instances of serious misbehavior such as assault or failure to heed warnings were followed by placement in a safe, indestructible room-within-the-room until the child had been quiet for two minutes in the time out room. In the early weeks of the project, it was sometimes necessary to exert physical force to place some children in the time out booth, but children quickly learned to go in upon instruction after one or two such episodes. Excessive use of time outs for some children clearly signaled that there were problems with the positive reinforcement system and adjustments were attempted. At the same time we were, as noted previously, reluctant (perhaps unnecessarily so) to make major modifications in the classroom-wide system to better manage any single child, but generally speaking the time-out procedure proved extremely valuable as a means of controlling seriously deviant or disruptive behavior which by contagion could quickly lead to complete chaos. Also used to separate the disruptive child from the situation were standing in the corridor outside the classroom, visits to the principal's office, and in exceptional circumstances, sending the child home, the latter often not very practicable since mothers often worked.

Reintegration

By the Spring it became apparent that certain children had improved to the point where they merited a start in the regular class in the following academic year. To ease this transition, children were gradually reintegrated on a part-time basis into the regular class in the same school toward the end of the school year.

Results of First Year Research

As discussed above, executing a research program in a service setting often requires compromises in experimental rigor. In a sense too, so does tooling up and the acquisition of skills in the basic elements of the program. It will be seen that each year of the program marked an increasing degree of experimental rigor culminating in the fourth (second resource room year). The first year was characterized by a number of critical weaknesses in design. The observation schedule was still in a state of development, thus certain definitions required changing as the year went along but most particularly at the beginning. No pre-entry data was available on the first year core group (N=8) (i.e., children in and remaining in) the "baseline" or pre-reinforcement period was not really baseline at all in the sense of being representative of the nature rate of deviant behavior (see Chapter for fuller discussion). The rapid deterioration in the children's behavior after a two week "honeymoon" required immediate application of time out procedures to save the program and retain the teaching staff. Children came into the program at various times so that the group structure was constantly changing. The reinforcement procedure differed in kind and date of introduction in the two classes, yet because of the small number of children in the core group, data had to be combined for statistical analysis. With these limitations then the following data is presented.

Only three items were stable enough in definition or frequent enough in occurrence to merit analysis. Attending or "on task" is probably the most meaningful measure. "No deviant" reflects inversely the amount of total deviant behavior and not surprisingly is moderately correlated with "on-task." Out of seat is self-explanatory.

To avoid programmatic changes and changes in data collection techniques data originally grouped into five day means was further reduced into baseline (first three weeks of school), middle seven weeks (December-January), and late seven weeks (February-March). For both these latter periods the reinforcement was operating; in the middle period it had been in operation over four to six weeks. After March, half the core children were back in the regular class at least part time so those data were not analyzed.

From Table III-1 it can be seen that while there is a slight increase in the amount of deviant behavior, the most common seriously disruptive behavior, out of seat, had declined suggesting that the children began to manifest less grossly deviant expressions of their conduct disorder.

Attending showed little change, though it should be noted that the level approximates that of normal children in the regular classroom (see Chapter II) which is a cause for some satisfaction in itself.

It must be concluded, however, that evidence of the overall efficacy of the intervention program is lacking in these data. This does not mean, however, that the reinforcement system was ineffective since as pointed out above time out procedures were operative during some of the baseline procedures and it can be argued from inspection of some data on the use of time out (maximal in the first 4-5 weeks of school) that the reinforcement system aided in the transfer of control of behavior from aversive to positive contingencies.

While the main emphasis of the first year was on the modification of social and attending behavior, the Wide Range Achievement Test was administered to these eight children early in the school year and again in May. These data are set out in Table III-2.

The mean gain in reading was .53 for a year and only .10 in arithmetic. These gains are clearly less than satisfactory, and emphasize the central importance of attention to curriculum and the reinforcement of academic responses in special class programs for the behaviorally disordered.

Second Year's Research (1967-68)

The Children

Referral and diagnostic processes were essentially the same as in the first year, except that children now generally received 5-10 sets of behavior observations in their regular classroom before entry to the special class. As discussed in detail in Chapter II, these pre-entry observations showed the conduct problem children to be behaviorally disturbed as compared to normal children. The older conduct problem children numbered six, all of whom except one had entered the class in the 1965 or 1966 school years. These children remained in the special class throughout the major part of the school year and this class was thus a stable group.

The younger conduct problem children numbered ten, eight of whom came into the program on or after September 1967. Only two children, however, were in the class for as much as half a year (four children left the district, and the others were referred late in the school year). This class then was able to provide little complete data.

The ages and IQ ranges of the children in the two classes were the same as the previous year. There were now two girls in the larger group. One striking change was in the number of Afro-American children who now numbered half the group despite a frequency of 13% on the general school population. The mean conduct problem score for the new referrals in both classes was 14.3 (SD=2.55) much the same as the previous year and clearly abnormal. The personality problem or anxious-withdrawn mean score was 5.4 (SD=1.8) just outside the normal range.

A third class was added for personality problems (anxious-withdrawn) children. A total of nine children (one girl), all new referrals, entered the program but only five were in the program for over half the year, since it took some time for this new program to be publicized throughout the school system. The problem checklist scores were: conduct problem, mean of 6.3 (SD=5.9) only slightly higher than normal; personality problem, mean = 8.0, SD=2.91) significantly higher than the mean of normals of 2.89 (SD=3.19) attesting to the validity of the different type of class placement. The mean age of the nine children was eight years with a range of six to ten. IQ's ranged from 82 to 131 with a mean of 101. Academic skills at entry ranged from beginning first grade to beginning sixth grade. With one or two exceptions, children were functioning below expectation.

Program Philosophy and Orientation

As discussed above, the first year had been characterized by emphasis on modification of social behavior in the classroom which had resulted in very poor academic progress. Thus, it was felt that a change in program was called for to put primary emphasis on academic progress.

Changes in the Program

To implement this shift to a greater emphasis on academic achievement a number of modifications were felt to be necessary. Attractive reinforcers were attached directly to appropriate academic output rather than social behavior in the hope of increasing academic skills and bringing deviant behavior under control concomitantly since most deviant behaviors are incompatible with high levels of response to academic tasks. More time in the daily classroom schedule was allotted to academics, particularly reading. The organization of the daily schedule involved shorter time segments usually of 15 minutes duration for a specific work task. The reading period usually included four or five such tasks.

In the second year small groups operating at approximately the same academic level participated in group instruction with the delivery of appropriate reinforcers modified, when necessary, to fit the group-working-together type setting. Furthermore, team teaching was utilized to capitalize on the special instructional skills of the staff. In the first year almost all instruction had been on a one-to-one basis which curtailed the amount of time spent with each child.

Finally, a program director was available full-time to serve as back-up for removing a disruptive child from the classroom if all other intervention procedures failed. This made it much easier for both the teachers and other pupils to continue with their daily required work output.

Classroom Organization

An attempt was made to keep the three special classrooms as uniform as possible. Three or sometimes four room corners were reserved for "free time" activity centers for reading, games, music, tape-recording, model building, etc. Two intensive teaching centers for small groups or individual tutoring were located at opposite areas of the room. Between the two teaching centers, the students' portable desks were arranged along the walls with a 5' x 4' divider separating the desks. Pupils were encouraged to hang their best work on their side of the dividers. The classroom walls were used for functional purposes. For example, each child's personal graph of his daily token total hung on one of the walls. A pictorial display of the reinforcement system was shown on a bulletin board in a prominent position. Back-up reinforcers and their prices for any given week were displayed in the center of the room on bulletin boards in front of the children's individual work areas.

Whenever possible, curriculum was chosen from standard texts and workbooks used in the school system. However, because of the special classroom schedule and the reinforcement system, it was necessary informally to evaluate additional academic materials thought more suitable to the unique demands. For example, reading material not only had to be of high interest and low vocabulary, but also sequential and easily adapted to use in 15 minute time segments of independent seatwork. Because the pupils were at many varied levels of achievement and in some cases weak only in particular areas at a given grade level, it was sometimes more advantageous to compile a sequential course of study from individual work sheets rather than utilizing a textbook.

Reinforcement System

Ten check marks entered on a 3" x 5" card were employed to reinforce starting, maintaining, and completing assigned work for each period in both classrooms for younger children (Hewett, Taylor & Artuso, 1969). When a pupil started his work quickly, he received two checks. If he continued to work, he could receive a maximum of three checks. Successful completion of the task enabled the child to earn a possible five additional points. Ten bonus checks a day could be used to shape up a specific behavior in a child or for exceptional academic activity.[4]

At the end of his last 15 minute work segment, the pupil would enter his check total on a personal graph. He could then spend his check cards immediately to enter a free activity corner or save them for a higher valued item. While it was hoped to move the children from immediate to delayed reinforcers, the basic principle was to make desirable objects available for every child on both a short and long term basis. The card value or price of reinforcers changed as the time progressed requiring greater performance for the same rewards. The giving and exchanging of check marks was accompanied with a brief, positive verbalization by the teachers. Extra praise was given to the child who delayed cashing in his check cards until he could buy a more expensive reinforcer.

In the classroom for the older group of conduct problem children an experiment was conducted with the reinforcement system wherein the fact of reinforcement was predictable but the nature and value of the reinforcement was uncertain. Reinforcement was contingent upon task completion with emphasis on both speed and accuracy and rewards were presented in the form of coded messages, mazes, or puzzles. When the "problem" was solved the result was that the reinforcer was "spelled out" for the child. Each message reinforcer was backed up by such things as free activity time, free cookies at milk and cookie time, a chance at the grab bag of 10¢ to 15¢ toys and trinkets, and other things such as a time out pass that could be given to the teacher to avoid taking a time out. This system of reinforcer delivery represented an extrapolation of a theoretical conception of extreme conduct problem behavior as representing a need for excitement and novelty (Quay, 1965).

The positive reinforcement system was supplemented by the use of time-out as used in the previous year except that if a child continued to be extremely disruptive while in the cubicle, he was removed from the classroom by the program director who served as back-up for the teachers. When removed, a child would do his academic work in the director's office, without the focus of anyone's attention, until he "cooled off." Before returning to the classroom, the child was given the opportunity, but not required, to discuss the problem.

Behavioral Criterion Measures

Observers continued to gather the behavior observations described in Chapter II though five times bi-weekly rather than daily as in the first year.

Results

Behavioral Changes

(a) Year-long data

Only the five subjects in the older conduct problem class had enough data to be analyzable longitudinally and to merit experimental manipulation. In this class data was collated for each child in ten day periods. After a 50 day baseline period the reward system was implemented through to the end of the 12th 10 day block (i.e., 70 school days) when it was removed for a second baseline period of ten school days.

The results of each child's data is set out in Table III-3. Variability is great, both within periods for a single child and between children in a particular period. It can be seen that three of the five children had a significant F ratio on the one way ANOVA, which in all cases except one, is due to the reinforcement period being better than the first baseline. The second baseline is however generally not different from the first baseline or the reinforcement period, suggesting only a slight decline with the removal of reinforcement. These data provide some equivocal evidence for the effect of the reinforcement system on attending behavior in selected children but further also to the weakness of the baseline-reinforcement-baseline paradigm as an experimental tool in the classroom setting (see Chapter VII).

(b) Behavior compared to 1966 classes

Table III-4 compares behavioral data on the conduct problem children in the two classes obtained at two times: in the spring of the first year of the program (1967), and in the late winter of the second year of the program (1968). The group means are based on individual means for each child derived from about 10 and 40 observations per child in each of the two groups, respectively. The group means thus represent a summary of the behavior of the children within the groups extending over a number of weeks toward the late middle or end of the program's operation for the particular year. The children, of course, had been in the program for varying lengths of time during both years. Further, about one half of the 1968 children are represented in the 1967 sample.

This data suggests that the 1968 special class program was superior to the 1967 program in ameliorating deviant behavior, since there were seven significant differences with five reflecting improvement in 1968. Two additional items in 1968 approached significance (other deviant, isolation). On the two most important items (no deviant, on task) significant improvement was shown by the 1968 program. Only two behavioral items were significantly less frequent in the 1967 program (out of seat, vocalizations). The amount of teacher contact showed no difference for the two years. While there is no precise record of the behavior-reinforcement relationship, the data suggest that the improved behavior in 1968 cannot be attributed to teacher attention _per se_. The greater frequency of "isolated from the class" in the 1967 group probably reflected the observed differences in the amount of deviant classroom behavior in the respective programs in each year.

Furthermore, in some respects--notably attention--the 1968 program may have been capable of eliciting a performance in the conduct problem children at least equivalent if not superior to that of normal children since as discussed in Chapter II we had found a 77 percent mean attention in normal children. Both the 1967 and 1968 programs produced substantial changes in behavior since pre-treatment data obtained on some of the conduct problem children prior to their admission to the special class showed much poorer behavior in their regular classroom. For example, on two of the most significant behavioral items no deviant was 39.4 percent and on task behavior 53.7 percent at pre-entry (see Table II-2).

Summary of Behavioral Changes

There was thus good evidence that the second year's classroom program was more effective than the first year's in modifying the behavior of the conduct problem children and that the level reached was as good as and perhaps superior to that of comparable normal children (in the regular classroom). There was some more equivocal evidence that it was the reinforcement program which was having a small but significant effect in modifying behavior. Because of the late entry of the withdrawn children into the program no useable behavioral data was available by which to evaluate their progress.

Academic Achievement

Gains in academic achievement were assessed by means of the California Achievement Test administered in September (or when the child entered the class) and again in late May. For those children (8 out of 17) who entered subsequent to the opening of school academic gains were prorated for length of time in the experimental classroom. For example, children four and five in the younger conduct problem class (see Table III-5) participated for only four months. Their actual gains (made in the months of February through May) were multiplied by 9/4 to obtain an estimate of what might have been gained had they attended a full nine months. This method of estimating total gain is actually conservative since it assumes that a child's gains would be equal in each month in the classroom. In actuality gains per unit time very likely increase, being smaller in the initial months and larger in the latter months. If gain is accelerating then the linear extrapolation used here underestimates total growth.

The average growth of almost one and one half years in the three areas was extremely gratifying, especially in light of the results of the first year's work and gains reported by other investigators in self-contained special classes (Hewett, Taylor & Artuso, 1969).

With the exception of less gain in arithmetic among the older conduct problem group the growth made by all three classes is very similar.

The superiority of the academic gains of the second year as compared to the first is attested to by the data in Table III-6. These data reflect a comparison of gains in the two years among only those children for whom it was not necessary to pro-rate for failure to attend the full nine months.

Chapter IV

Research in the Resource Room

The two years of research in the special class setting had been both rewarding and discouraging to our efforts to develop a viable public school program for the behavior problem child. The rewards came primarily from the results of the second year indicating the utility of behavior modification techniques in increasing academic achievement in the special class setting with both conduct problem and personality problem children.

The discouraging aspects grew out of factors associated with the setting rather than with the method. It was obvious that the cost per child was high. Our experience suggested that a teacher and an assistant could successfully work with no more than 10 hyperactive, conduct problem children. An associated problem was the availability of trained teachers themselves at whatever price. Thus, it seemed that cost and manpower factors associated with the special class would serve to prevent many children from receiving help.

It was also clear to us that the process of labeling and extrusion from the regular class operated to make re-entry, even on a part-time basis, into the regular class more difficult. Once responsibility is removed from the regular class teacher and her administrative channels and the child becomes the responsibility of specialists, there is a reluctance to reclaim the child for regular education.

We also made observations, formal and informal, which confirmed earlier observations by others (Long, Morse & Newman, 1965, p. 113) that behaviorally deviant children may be disruptive only at certain periods of the day or only episodically over a period of weeks or even months. Further, such disruptive episodes may be related to the child's academic difficulties at certain times or during certain subjects.

An added consideration related to the persistence of deviant behavior itself. Research has suggested that behavior problems in a significant portion of children appear not to persist over time even in the absence of any formal intervention (Shepherd, Oppenheim & Mitchell, 1966; Glavin, 1968). Such knowledge should make one even more reluctant to label and extrude behaviorally deviant children.

A consideration of all of these factors led to a decision to adapt the resource room as an alternative setting and to study the ways in which reinforcement theory techniques could be adapted to remedial behavioral and academic programs within that context.

Method

Selection of Children

Faculty members of the three participating elementary schools in inner city Philadelphia were asked to complete the Behavior Problem Checklist (Quay & Peterson, 1967) for any child the teacher felt was either extremely disruptive or overly withdrawn. Teachers also completed a form which requested information, among other things, on the child's most disruptive times of the day, classroom activity and achievement at those times, and reinforcement preferences of the child.

Between 40 and 50 children were referred from each school which represented approximately four or five percent of the total population. From the pool of referrals half of the children were randomly selected for part-time participation in the resource room; the remainder continued in their regular class and comprised the comparison group.

Children were from the second through the sixth grades, though their academic achievement seldom matched their grade placement (approximately 90 percent were academically retarded). All had at least an IQ of 70. In two schools in low socio-economic areas the majority of the children were Afro-Americans; the remaining being Puerto Rican. The third school had an all Caucasian population and was located in a more stable and slightly higher socio-economic area.

Table IV-1 provides data on the characteristics of those children in both groups from whom achievement and behavior gains were compared. None of these characteristics were significantly different between groups with the exception of intelligence which was significantly higher in the comparison group. However, correlations obtained later between intelligence and gain scores ranged from zero to .26 with none approaching statistical significance for the associated number of subjects. Of the 27 children in the experimental group who met the criteria for the analysis of academic gains, 14 attended the resource room for two periods a day and received instruction in both reading and arithmetic, 11 attended for one period per day and were instructed only in reading while two children attended one period per day and received instruction only in arithmetic.

Although each experimental child was scheduled to attend the resource room for either one or two periods a day, responsibility for the child remained with his regular class teacher. The resource rooms were not available for random problems at other times of the day. Instead, it was believed that the resource room teacher would be able to provide for the regular-classroom teachers concrete suggestions and support in minimizing and handling behavioral crises. In turn, the resource room teacher would rely upon the regular teacher for many types of information as well as for periodical checks on the child's performance to determine if there was transference of results from the resource room to the regular class.

It was also intended that the staff of the resource room see itself not only as operating an intervention setting, but also as operating a laboratory in which techniques for teaching adaptive behavior in a group setting could be developed and communicated to teachers in the regular class. In order that these objectives might be carried out, each school had a specific period of the day (usually morning recess) when the resource room was not in use. During this time the resource room personnel had time to locate absent children, arrange interviews with parents, or discuss problems with the regular class teachers. The remainder of the daily resource room schedule consisted of four 45-60-minute teaching segments with from seven to ten children attending each period.

Classroom Organization

The environment of the resource rooms varied in each of the three participating schools depending largely upon whatever free room was available at the beginning of the school year. One resource room was located in a church rectory office (9' x 30') across the street from the school. Otherwise, an attempt was made to keep the rooms as uniform as possible. Three or sometimes four room corners were reserved for "free time" activity centers for reading, games, music, tape-recording, model building, etc. Two intensive teaching centers for small groups or individual tutoring were located at opposite areas of the room. Between the two teaching centers, the students' portable desks were arranged in a semi-circle with a 5' x 4' divider separating the desks. Pupils were encouraged to hang their best work on their side of the dividers. The classroom walls were used for functional purposes. For example, each child's personal graph of his daily token total hung on one of the walls. A pictorial display of the reinforcement system was shown on a bulletin board in a prominent position. Back-up reinforcers and their prices for any given week were displayed in the center of the room on bulletin boards in front of the children's individual-work areas.

Whenever possible, curriculum was chosen from standard texts and workbooks used in the school system. However, because of the resource room schedule and the use of reinforcers it was necessary to use and to informally evaluate additional academic materials thought more suitable to the unique demands of a resource room (see Appendix II). Reading material not only had to be of high interest and low vocabulary, but also sequential and easily adapted to use in 15 minute time segments of independent seatwork. The mathematics program in the schools where the resource rooms were located tended to be traditional in nature; thus, it was found expedient to follow a traditional approach. Because our pupils were at many varied levels of achievement and in some cases weak only in particular areas at a given grade level, it was often more advantageous to compile a sequential course of study from individual work sheets rather than to utilize a textbook.

Reinforcement System

Poker chips used as secondary reinforcers were employed to reinforce starting, maintaining, and completing assigned work, a sequence following that of Hewett, Taylor and Artuso (1969). When a pupil started his work quickly, he received one chip. If he continued to work, he could receive a maximum of two chips. Completion of the task enabled the child to earn one or two chips depending upon the accuracy of his work. A two poker chip bonus was alloted for task completion before a timing bell sounded ending each 15 minute work segment. The pupil worked for three fifteen-minute work segments in each 60 minute period. A fourth, optional, free-time segment was used so that the pupil could either "buy into" an activity corner (games, phonograph and records, comic and library books, magazines, tape recorder, etc.) or continue working in order to achieve extra points for other reinforcers. Thus, a maximum of either 21 or 28 chips could be earned each period depending upon the child's performance on any given day.

At the end of his last work section, the pupil would count his chips, report the total to the resource room teacher, and enter his chip total on a personal graph. The teacher would exchange ten chips for a card which could then be spent immediately or saved for a higher valued item. While it was hoped to move the children from immediate to delayed reinforcers, the basic principle was to make desirable objects available for every child on both a short and long term basis. The 'card value' or price of reinforcers changed as the time progressed requiring greater performance for the same rewards. The giving and exchange of points for reinforcers was accompanied with a brief, positive verbalization by the teacher appropriate to the situation. Extra praise was given to the child who delayed cashing in his points until he could "buy" a more expensive reinforcer.

A large store of toy reinforcers was maintained ranging from five cent "monster people" and toy finger rings (one card) to 55 cent car and airplane plastic model kits (11 cards). When it was observed that many of our pupils came to school without breakfast, primary reinforcers of cookies, crackers and fruit punch (one card) were introduced. The popularity of manipulable reinforcers diminished in two schools located in very economically deprived areas once the edible reinforcers were introduced. At the third school which was situated in a stable upper-lower class environment, the manipulable reinforcers continued to be preferred.

When classroom rules were violated, the child would be given a warning which might consist of a look, restraining touch, question, or some other means of communication. If the behavior persisted, the child was removed from the opportunity to receive reinforcements by being sent to the time-out room (cloak room). He could return to the resource room after being quiet for a minute or two. Teachers were encouraged to return the children as quickly as possible.

Staff Training

Two of our teachers had less than one year of substitute teaching prior to joining our staff; the third teacher had eleven years experience. Each teacher was supported by a teacher-assistant. One part-time teacher-assistant had 13 years teaching experience while the other three part-time assistants had none.

During the first weeks of the project, teachers and one of the project directors met regularly to discuss the operating strategies to be used in the resource rooms. After classes commenced, a weekly meeting was conducted by a project director for teaching personnel. Behavior modification, classroom structure, and particularly difficult management problems seemed to dominate the discussions. Other problems often discussed included individualizing curriculum, reinforcement problems, resource room and regular teacher relationships and ways of handling chronic absentees.

Each resource room was visited by a project director approximately once a week. This visit usually involved a short discussion with the school principal. In addition, three times during the year the authors held meetings with the entire regular classroom faculty to describe the rationale of the project, to clarify and modify the role of classroom observers, some of whom had become a problem to the faculty, and finally to communicate the results of the first year of the research to the regular class teachers. Several other small group meetings were held by a project director, resource room personnel, and regular class teachers who continued to have management problems with children referred to the resource room.

Classroom observers were trained to time sample the children's classroom behavior using a technique described in Chapter II. Continuing throughout the research the observers had a review of procedures, feedback concerning their problems in carrying out the data collection, and reliability trials.

Criterion Measures

One aim of the research was to compare overt behavior change in the resource room as compared to the control group. Observers gathered counts on three classes of observations: deviant behavior, on-task behavior, and teacher-pupil contact. Observing was to be done in a task situation where the rules were clearly defined. In general, this was during individual, academic seat work where there was a minimal amount of pupil-teacher interaction.

Children in the control group were observed in the regular classroom setting while children in the experimental group were observed in both regular classrooms and resource rooms. Observations were made throughout the school year. Spot checks were taken of the observers at irregular intervals to insure reliability. A mean percentage ratio agreement was computed for each behavioral category between all pairs of observers. This was continued until the mean percentage ratio agreement for all categories exceeded 80 percent.

A second research aim was to evaluate academic gain. Different forms of the California Achievement Test were used for pre and post testing all children referred.

Results

Academic Achievement

School personnel were encouraged to make referrals to the resource room throughout the year as well as to participate in deciding when a child in a resource room should be returned full-time to the regular classroom. Because of fulfilling this service function and the typically high movement rate between schools in the inner city, there was a high turnover of pupils in the resource rooms throughout the year. Providing an open-ended program in terms of student admissions and discharges enabled the resource rooms to function in a service role but added many difficulties to the collection and analysis of the data.

In order to compare children participating in the experimental program with the group who did not, criteria had to be established to define participation in order to make a meaningful assessment of the effect of the program. The following criteria were then established:

1. At least six months between pre and post-tests for both experimental and control groups,
2. At least five months in the experimental program for experimental children, and
3. No more than thirty school days elapsed between pre-test and program admittance for the experimental group

Thus, while a total of 55 children received some service in the resource rooms only 27 children met the above criteria and the following analyses are restricted to that group. The actual length of time of exposure to the experimental program ranged from a minimum of five months to a maximum of 6.5 months with a mean of 5.8 months.

The experimental and comparison groups were compared on four achievement gain scores as shown in Table IV-2. Two comparisons produced significant results. The experimental group improved significantly more in reading comprehension and arithmetic fundamentals.

Classroom Behavior

Observations were analyzed in two ways. In the first, a simple pre _vs_ post split by date of admission to the resource room was made for the experimental group. For the controls, the "pre _vs_ post" point was fixed as the median date of admission of the experimental children to the resource room in the same school. Using a two-way analysis of variance technique (treatment group pre-post-admission) two separate analyses were made. The behavior of subjects in the resource room situation and in their regular class at the same time they were attending the resource room, were compared with that of controls in the regular class. The results of this analysis are summarized in Table IV-3.

These data suggest as follows: in their behavior _in the regular classroom_ both controls and subjects show an equal amount of not inconsiderable improvement after the admission date to the resource room or equivalent for the controls. Since there is no difference in this respect between the groups it cannot be influenced by the resource room program and must hence be termed "spontaneous improvement." Neither does the amount or kind of teacher attention seem to be a factor in this "spontaneous improvement" since this remains constant.

However, while there is no difference between experimentals and controls in the regular class situation, there is a significantly greater degree of improvement in children observed when in the resource room as compared with controls. It is also noteworthy that there is a significantly greater amount of positive teacher-pupil ratios in the resource room. This could well be one of the factors responsible for the significantly better behavior in the resource room.

The data would suggest that while the program was effective in improving the children's behavior in the resource room, this improvement does not appear to generalize into the regular classroom and is thus linked to the stimulus conditions and consequential events in the resource room. Yet there is a hazard to this conclusion. The lack of data necessitated comparison on a simple pre-post-admission split; if treatment in the resource room program had a considerable latency before becoming effective, this simple split might have obscured any treatment effect.

For this reason, a second analysis was done to examine behavioral changes as a function of time, using resource room subjects only since too few controls had sufficient data. The behavior observations were sub-divided into pre-entry early resource room (during the first month), late resource room (during the third month), early post-admission in the regular class and late in the regular class. The results of this analysis (one way ANOVA) are set out in Table IV-4. The Scheffé (1953) method was used for the posthoc analysis of difference between means.

It can be seen that, as in the first analysis, behavior is significantly better in the resource room than in the regular class either pre-entry or after admission to the resource room. Most of this improvement occurs immediately (within the first month) and the small size of the subsequent improvement in the third month does not appear to support the notion that the failure to find differences between resource room subjects and controls in the first analysis is due to a slowness in the program's effectiveness. Under these circumstances it appears wisest to conclude that while the children's behavior was changed rapidly and dramatically in the resource room situation, generalization into the regular classroom did not occur automatically. The further incidental finding that all children improve as the school year goes on, independent of what treatment they get once again emphasizes very clearly the necessity for control groups in evaluating any remedial interventions.

The effect of the experimental resource rooms on academic achievement was encouraging with significant results shown in two of the four comparisons. The magnitude of the gains themselves were even more encouraging in light of the fact that the average exposure to the resource room program was under six months. Behaviorally, increases in attending and decreases in deviant behaviors in the resource rooms appeared immediately after admission and showed little increase thereafter; perhaps due to the rapid approximation to the desired terminal goal.

The Second Year

As we considered what changes might be made in the second year study of the resource room model a number of alternations in both program operations and research designs were studied.

A change in research strategy which would have made one resource room into a "control" class for possible effects of increased teacher attention due simply to smaller class size was considered. This alternative was rejected for a number of reasons. Class size *per se* has not been shown to be a major influence in academic achievement. The control class would have to have been taught by a teacher new to our program who had had no prior teaching experience whatsoever, then working for an "unfair" comparison. Perhaps the most important reason of all for rejecting the control class strategy was our desire to sharpen up our operational program and to demonstrate its effects on as large a group of experimental children as possible.

An increased concern with reading was clearly indicated. While the first year's work had resulted in significant gains in reading vocabulary and arithmetic fundamentals, reading comprehension and arithmetic reasoning were not significantly improved. Very likely the minimal gain in reading comprehension was also being reflected in the arithmetic reasoning performance. Thus we set out to emphasize reading instruction, particularly comprehension, in as many of our referrals as possible.

Increasing generalization of attending behavior was also considered highly desirable. To bring this about we sought ways to increase contact between regular class and resource room teachers. More formal approaches, such as direct consultation to the regular class teachers were considered but were simply outside the scope of our resource and would have to be left to the future.

Method

Selection of Children

As in the first year faculty members of the three participating elementary schools were asked to complete the Behavior Problem Checklist for any child they felt was either extremely disruptive or overly withdrawn and to complete a form which requested information on the child's most disruptive times of the day, classroom activity and achievement at those times, and reinforcement preferences of the child.

The number of referrals differed in each school. School A, with an enrollment of 895 referred 52 children; School B, enrolling 760 referred 57; while School C referred 41 from a total enrollment of 674. From the pool of referrals in each school, somewhat over one-half were randomly selected to comprise the experimental group; the remainder made up the comparison group. From the originally selected groups attrition by transfer or chronic absenteeism occurred in the case of 17 experimental and 16 control children.

Children were from the second through the sixth grades, though their academic achievement seldom matched their grade placement. All had at least an IQ of 70 as measured by the Slosson Intelligence Test. In one school (A) in a low socio-economic area all children were Afro-Americans. The second school (B) was comprised of a predominantly Caucasian population from a comparable low socio-economic area. The third school (C) had an all Caucasian population and was located in a more stable and slightly higher socio-economic area. Schools A and B were hosts to the experimental program for the first time; School C had been a participant in the first year's research. Characteristics of the two groups combined over the three schools on sex, age, IQ, average grade placement, initial academic achievement, and scores on the Behavior Problem Checklist, may be found in Table IV-5. The groups do not differ significantly on any of these variables nor are there more than minor differences between the three participating schools. Scores on the Behavior Problem Checklist, filled out by referring teachers, suggest that a majority of the children exhibited conduct problem behavior. In fact, mean scores on the conduct problem factor of the checklist (11.62 and 10.33) are well above those reported for non-problem children (Quay & Peterson, 1967; Speer, 1971) and within the range reported for samples of children being seen in child guidance clinics (Quay, Sprague, Shulman & Miller,1966; Speer, 1971). The magnitude of the checklist scores further suggests that according to the judgments of the referring teachers, the vast majority of the children could be considered "emotionally disturbed" in the traditional sense. While teacher judgment may be questioned by some, recent research (Harth & Glavin, 1971) has suggested that it has considerable validity in the identification of emotional disturbance.

It was decided to stress reading instruction with all children unless their arithmetic achievement was significantly lower than their reading. Of the 69 children in the experimental group who met the criteria for the analysis of academic gains, 16 attended the resource room for two periods a day and received instruction in both subjects, 51 attended for one period per day and were instructed in reading only, while 2 children attended one period per day and received only instruction in arithmetic.

Each school had a specific one hour period during the day (usually morning recess) when the resource room was not in use. During this time the resource room personnel had time to locate absent children, arrange interviews with parents, or discuss problems with the regular class teachers. The remainder of the daily resource room schedule consisted of four 45-60 minute teaching segments with from seven to ten children attending each period.

Classroom Organization

The environment of the resource rooms were similar in each of the three participating schools. Three or sometimes four room corners were reserved for "free time" activity centers for reading, games, music, tape-recording, model building, etc. One intensive teaching center for small groups or individual tutoring was located in the center of the room. Around the teaching center portable desks were arranged in a semi-circle with a 5' x 4' divider separating the desks.

Pupils were encouraged to hang their best work on a bulletin board in a prominent position. Back-up rewards and their prices for any given week were displayed in the center of the room on bulletin boards in front of the children's individual-work areas.

As in the first year whenever possible, curriculum was chosen from standard texts and workbooks used in the school system although it was again necessary to use additional academic materials more suitable to the demands of the resource room.

Reinforcement System

Poker chips were again used as secondary reinforcers to reinforce starting, maintaining, and completing assigned work. Reinforcement procedures were essentially the same as in the first year. Beginning work quickly earned one chip, continuing to work brought two and completion of the task enabled the child to earn an additional two chips. A two chip bonus was alloted for task completion before a timing bell sounded ending each 15 minute work segment. Pupils worked for three fifteen-minute segments in each 60 minute period. During a fourth segment the pupil could either "buy into" an activity corner (games, phonograph and records, comic and library books, magazines, tape recorder, etc.) or continue working in order to achieve extra chips to be used to secure other reinforcers.

At the end of his last work section, the pupil would count his chips, report the total to the resource room teacher, and enter his chip total on a personal graph. The teacher would exchange ten chips for a card which could then be spent immediately or saved for a higher valued item. The 'card value' or price of reinforcers changed as the time progressed requiring greater performance for the same rewards. The giving and exchange of points for reinforcers was accompanied with a brief, positive verbalization by the teacher appropriate to the situation. Extra praise was given to the child who delayed cashing in his points until he could "buy" a more expensive reinforcer.

A large store of toy reinforcers was maintained ranging from five cent "monster people" and toy finger rings (one card) to 55 cent car and airplane plastic model kits (11 cards). As we had observed in the first year that many of our pupils came to school without breakfast, cookies, crackers and fruit punch (one card) were made available at the beginning of the year. At the suggestion of one of the school principals, the children were given the option of purchasing an inexpensive gift for their parents such as a 50 cent brooch or tie tack (10 cards). This alternative proved to be very popular, particularly around holidays.

Persistent deviant behavior was again followed by removal from the opportunity to receive reinforcement by being sent to a time-out chair which faced a bare room corner. However, a school principal pointed out that if the resource rooms were truly attractive and reinforcing for the children, then a child given time-out should sit facing toward the room to, in effect, see what he was missing. He could then return to work after being quiet for a minute or two. Teachers were encouraged to return the children as quickly as possible.

Time-outs seldom had to be used at any of the schools. Occasionally a child's behavior would not be modified by giving him a time-out. Then he would be taken to the principal's office where he was required to complete an academic task to earn his return to the resource room.

Staff Training

Two teachers had taught in resource rooms the previous year while the third teacher had no previous teaching experience. Each teacher was supported by a teacher-assistant. One part-time teacher-assistant had seven years teaching experience while the other five part-time assistants had none.

During the first weeks of the project, teachers and one of the project directors met regularly to discuss the operating strategies to be used in the resource rooms. After classes commenced, occasional meetings at each school were conducted for teaching personnel by a project director. Discussion of behavior modification principles, classroom structure, and particularly difficult management problems predominated. Other problems also discussed included individualizing curriculum, reinforcement problems, resource room and regular teacher relationships and ways of handling chronic absentees.

Each resource room was visited by a project director approximately once a week. This visit usually included a short discussion with the school principal. In addition, the authors held two meetings with the entire school faculty first to describe the rationale of the project, and finally to communicate some of the results of the research. Several other small group meetings were held by project director with resource room personnel and regular class teachers who continued to have management problems with children referred to the resource room.

Criterion Measures

The large number of children involved restricted the amount of time which could be spent in observing behavior in the classrooms. This consideration, taken in conjunction with the very low frequencies of many deviant behavior categories noted in the prior year's research led to a decision to restrict behavior observations to a measure of attending (eye contact) following the procedure used by Hewett, Taylor & Artuso (1969). Children were observed for five consecutive minutes during seat work with the total number of seconds of eye contact with book, work-sheet or teacher constituting the child's attending score for that observation.

Each child was observed as follows: 1) ten times on separate days during the four week period prior to the opening of the resource room, 2) once weekly during the time the resource room was open resulting in 23 observations per child in two schools and 16 observations in the third, 3) ten times during the period after the closing of the resource rooms. Experimental subjects were observed in both the resource room and in the regular class and thus had a double set of observations during the intervention period. If a child was absent at the time his observation was normally scheduled, a make-up observation was carried out later if at all possible. However, only these subjects on whom all or almost all the observational data were collected during all three periods were used in the final analysis of attending behavior; this accounts for the slightly smaller sample size than in the comparison of achievement gains.

Reliability checks were run at various times during the year. Overall, 68 inter-rater reliability estimates were obtained for various combinations of observers from September through May. In 57 comparisons the mean percent agreement was 95% better. In only seven instances did inter-rater agreement fall below 90%.

As a measure of academic achievement different forms of the California Achievement Test were administered, in small groups, to both experimental and control children prior to the opening of the resource room and again in late May or early June.

Results

Attending Behavior

To reduce the more than 7500 individual observations into comprehensible size and form as well as to deal with some minimal missing observations for individual children, the observations for each child were converted into means for the two groups for five phases of the study as follows: 1) baseline phase (10 observations), 2) early intervention phase--weeks 1 to 7, 3) middle intervention period--weeks 8 to 16, 4) late intervention period--weeks 7 to 23 (two schools only), 5) post-intervention phases (10 observations).

Data for each school were analyzed separately by means of a two-way analysis of variance (groups by treatment periods). Since experimental children had two sets of observations taken during the treatment phases (in resource room and in regular class), separate analyses for each source of data were required.

Means and standard deviations of the observations may be found in Table IV-6. While there were some minor differences, the findings from the three schools are consistent.

Analysis of the data obtained in the baseline period, the resource room and the post intervention period revealed highly significant time X treatment interactions in all three schools. Post-hoc testing of differences between means by the Scheffé method revealed, with an occasional minor deviation, that in all three schools:
1) baseline means did not differ between the experimental and control groups, 2) the means of the experimental subjects' observations in the resource room differed from their own baseline means and their own post-treatment means (the latter two taken, as noted, in the regular class) but not from each other, 3) the means of the experimental group during the treatment period taken in the resource room differ from the controls, taken in the regular classes, during each of the three treatment periods and, 4) the two groups do not differ in the post-treatment phase. An additional one-way analysis of variance revealed that the means for the experimental group taken in the resource rooms are

significantly higher than their means taken in the regular class at the same period.

Data taken in the regular classroom revealed a significant time X treatment interaction in only one school; a post-hoc Scheffé test revealed this to be due to one abnormally low point in the middle treatment period in the control group. Thus, while the experimental group increases its attending behavior while in the resource room, attention in the regular classroom does not improve, nor is it different from the controls. While in all three schools there was a main effect for treatment in both groups further analysis revealed this to be randomly distributed. In particular, no systematic improvement over time or "spontaneous improvement" noted in the first year's program was apparent.

Academic Achievement

As noted earlier, the initial achievement levels in experimental and control children were comparable. In Table IV-7 may be found the means and SDs of gain scores in academic achievement for both groups in each of the three schools. An analysis of variance revealed significant differences between the experimentals and controls in all three schools in Reading Vocabulary ($F=8.2$, $df=109$, $p < .01$), Total Reading ($F=7.8$, $df = 109$, $p < .01$), Arithmetic Fundamentals ($F=23.1$, $df=1/60$, $p < .01$) and Total Arithmetic ($F=3.0$, $df=1/109$). Reading Comprehension differed at a level approaching significance ($P >.10 <.05$). There were no interactions of school and treatment suggesting that no one resource room could be considered superior to any other although the sample sizes in the case of arithmetic were really too small to permit detection of school effects unless the latter were very large. There was a single significant main effect for schools; both experimental and controls in School B gained more in total arithmetic than the combined groups in school A. This effect seems largely due to the poor performance of the control group in school A where the average gain was only about one-third of a year. It should be noted that the program in school A was in operation for six weeks less than in schools B and C.

Discussion

Considering the factors involved, the results of the comparisons in academic achievement are most gratifying. The average gains of the experimental children are a full school year in arithmetic and very close to a full school year in reading.

It should be noted that the resource room program was in effect for only 23 weeks (schools B and C) and 16 weeks (school A) of the total school year of 40 weeks. Had the resource room been implemented immediately upon the opening of the school and had it remained open until the close of school it is likely that the gains in the experimental group would have been slightly better than a full school year in both reading and arithmetic.

The gains made by the controls are between one-half and two-thirds of a year. These gains are very close to those reported to the public by the school system for the schools in the particular area of the city in which the project schools were located.

The data on attending behavior provide another demonstration of the need to program generalization; conditions in the regular class must clearly be changed to support behavior learned in the resource room. It is not at all likely that such changes can be brought about by limited contact between resource room staff and the regular class teachers which occurred during the course of our implementation of the resource room model.

The success of the experimental resource room in increasing academic achievement and behavior appropriate to the classroom has implications beyond these gains per se. A well engineered resource room not concerned with testing research hypotheses could very likely serve 40 children in five academic periods per day while holding class size during any one period to a comfortable maximum of eight. Even in the less than maximal load of the present research effort, a special class program would have required minimum of six self-contained special classes to serve the 53 different children participating in this resource room project.

Additional economic advantage occurs from the fact that referral was a simple process. Costly psychological and psychiatric examinations and resultant lengthy case conferences were not a requisite for resource room attendance, as is the case in most special class programs. The absence of the need for an extensive formal diagnostic process also reduces the stigmatizing effects of a diagnostic label resulting from such an examination procedure. Resource room classes were interpreted to children primarily as a place to catch-up on reading or arithmetic. The periodic attendance of many different children from many of the regular classes also serves to reduce stigma. Concomitantly, the problems of reintegration of the child back into the regular classes are obviated; the regular teacher continues to have major responsibility for the child.

Finally, it is suggested that not only is the reinforcement-theory oriented resource room an effective vehicle for the public school education of the behavior problem child, its adoption should be considered for other exceptional children as well. As an educational resource which concentrates on the remediation of specific behavioral and academic problems it can serve any child as long as his needs can be defined in these terms. As has been suggested elsewhere (Quay, 1968), all exceptional children may be seen as suffering from defects or deficits in specific aspects of the learning process in the classroom. Thus, a single resource room, organized to remediate specific dysfunctions can serve a wide variety of handicapped children.

Chapter V

Additional Studies completed within the context of the Research Program[5]

As part of the larger research effort concerned with the development and evaluation of behaviorally oriented techniques in the public school setting, a variety of other problems and research questions were raised. This chapter briefly reviews descriptive reports on curriculum materials and a recreation program for conduct problem children. Following this, several objective studies are reported in greater detail concerning the validity of teacher ratings for screening behavior disordered children, the use of peers in teaching reading to withdrawn children, and the differences found between subcategories of personality problem and conduct problem children in various academic areas.

Descriptive Reports

1. Curriculum

Scant attention has been given to the curriculum needs of behavior problem children aside from Rhodes' classic discussion (1963). Appendix II presents a summary and listing of materials ordered and utilized in the Resource Room Project during the 1968-69 school year. An effort was made to include materials made available by the school district as well as those distributed by the Resource Room Project. Listings have been made separately in the areas of reading, arithmetic and spelling. A code, similar to that used by Nolen (1968), has been used to provide information concerning the title, skill area, approximate grade level, format, price, and an informal evaluation with reference to content, design, expense, and appropriateness. Because of the resource room schedule and the use of reinforcers it was necessary to use academic materials thought more suitable to the unique demands of a resource room.

2. Recreation program

As noted in Chapter III Glavin and Witt (1969) have described the various successes and failures encountered in a sociorecreation program for conduct disordered children carried out in 1967-68. The experience suggested that the conduct disorder child can be helped to achieve greater satisfaction in a recreation setting if the setting is structurally conducive to the control of his deviant behavior. The traditional models of free play and socially centered programming were tried first but failed. Such recreational models could only be effectively utilized once the requisite social, physical, and behavioral skills (and inhibitions!) had been acquired in a structured setting. The significance of adequate recreational programming was illustrated in a recent report by Sadler & Blom (1970) indicating that the most serious deviant behaviors in a special class setting for emotionally disturbed children most frequently occurred during noon free play periods.

From our experience it appeared that the positive payoff of recreational participation is so great that a sociorecreation program can not only provide an excellent medium for the development of physical and social skills but can also be a major program area for rechanneling deviant behavior.

Objective Studies

1. Validity of screening by teacher ratings (Harth & Glavin, in press)

Much of the research reported in the literature as well as in our own work relies heavily upon some form of teacher ratings as a screening or selection device. The present study hypothesized that teachers can, in fact recognize different magnitudes of personality adjustment. Of secondary interest was the relationship of teacher and peer judgments.

While most studies in support of teacher accuracy define such accuracy in terms of teacher agreement with other professionals, the present study focused on teacher agreement with an objectively scored criterion: the California Test of Personality (CTP). Cronbach (1960) noted that while the CTP was not a definitive measure of any clearly defined trait, it did single out persons who freely checked symptoms and self criticisms. Other criterion measures were peer ratings (Bower, 1960; Maes, 1966), and the failure of one or more grades (see Sandin, 1944).

Subjects were 786 children in 24 predominantly Caucasian fifth, sixth, seventh and eighth grades in a small county in eastern Tennessee. They ranged in age from 10-14; only 14 of the children could be considered retarded on the basis of IQ.

Two instruments were adapted from Bower (1960) and were administered as part of a larger research project (Glavin, 1968):
1) Teachers completed a rating sheet as to whom they considered to be their 5 best adjusted and their 5 poorest adjusted children in their own judgment of what constitutes emotional adjustment, 2) Pupils completed a sociogram form requesting their choice of the 3 most liked and 3 least liked classmates.

The CTP was administered according to the instructions in the test manual. The test was read to the functional illiterates while a monitor assisted those children who needed further help. Glavin (1968) has presented data on the total screening instrument indicating that it had a test-retest reliability of .78 (interval of one month).

For those children not selected as either best adjusted (BA) or poorest adjusted (PA), an equal number were randomly selected and called average adjusted (AA). The data from these three groups of 109 subjects each served as the basis for the statistical analysis.

Using a simple randomized analysis of variance design and Duncan's Multiple Range Test, it was found that the BA group had a significantly higher mean CTP score (119.50)than both the AA (105.22) and

PA (92.65) groups. The AA mean score was also significantly higher than the PA mean score.

The BA group had also significantly more sociometric choices than either of the other two groups while the AA group had significantly more choices than the PA group.

For the final set of analyses all children were classified into two groups: 1) those whose age was appropriate for their grade, and 2) those who were 2-5 years older than they should have been for their grade placement. Chi-square analysis indicated that there were significantly more appropriate aged children who were BA and significantly more older children who were PA and AA. Differences between AA and PA were not significant.

Several conclusions seem justified. When the criterion is subjectively felt and reported distress which is reflected in CTP scores, teacher rating is a valid technique for identifying such children. Teachers seem clearly sensitive to the adjustment of these kinds of children since there are similarities between teacher and peer judgments. Peers also seem sensitive to other children expressing distress and it may be necessary to add other kinds of measures to identify other types of behaviorally disturbed children. A proposed modification could be the gathering of supplemental information on those children determined to be behaviorally deviant by actual classroom observation (see Chapter II).

2. The use of peers as teacher-aides (Glavin & Shoup, 1970)

Many reports have described the use of older students from higher grade-level classes as fulfilling the role of pupil-teachers, but only two articles were found in the literature which used peers as pupil-teachers. Zimmerman (1965) described a pupil-teamwork paradigm for the study of English in grade nine. The advanced students in the class ran mastery booths where they helped less-able students to learn skills and problem solving. Rogers (1969) used a similar approach to teach social studies. Neither article reported objective findings.

The purpose of this research was to evaluate the use of pupil-teachers to promote more rapid acquisition of reading skills. Subjects were nine children in a special class for anxious-withdrawn. Chronological ages were 6-10 to 10-8 with a mean of 8-6. IQ's from individually administered tests ranged from 82 to 105 with a mean of 92. Seven of the nine children had severe reading deficiencies. The remaining two children were approximately 1.5 years above grade level in reading. The modifications consisted of the provision of additional teacher assistance by utilizing pupil-teachers from the same classroom and a highly individualized curriculum.

a. Selection of pupil-teachers

If a child were older he could be used as a pupil-teacher with those younger children who were reading at a lower level or use was made of a pupil of the same age who was reading at least one grade level higher. Pupils were assigned to the pupil-teacher on the basis of personality, compatibility, and reading level. Using two pupil-teachers, the teacher was freed to tutor any child who needed special assistance, or to act as a "rover" assisting children in their silent reading or vocabulary review.

b. The procedure followed by the pupil-teacher

The first-step in the sequence involved a review of vocabulary words missed in the previous oral reading session. These words were checked by the pupil-teacher. After successful completion of this step the pupil returned to his desk for silent reading of the assigned selection. The goal for each child was to be challenged and moved along as quickly as possible with a minimum of frustration or discouragement. It was considered better for the teacher to make an assignment too short rather than too long. This enhanced the frequency of reinforcement which was an important consideration in the study.

The pupil then read orally eight lines of print in his assignment selected by the pupil-teacher. Missed words were written on a piece of paper by the pupil-teacher and became the new vocabulary words to be learned by the pupil. If the pupil missed more than two words in his oral reading, the pupil-teacher reviewed the words with him and asked him to return to his seat and study the same section again. If two or less errors were made, the pupil-teacher next sent the pupil to the teacher for his comprehension question. The teacher had on file the comprehension questions covering the reading assignments in each child's text. If the child missed the question, he was assisted by the teacher and encouraged to reread the section silently. He then returned directly to the teacher for the comprehension question. Upon answering the question correctly, the pupil was then reinforced and instructed to begin his next assignment.

c. Analysis of reading material

Basal readers at the appropriate level were divided into one, two and three page lessons according to the child's need for success and his reading skills. The start of a lesson was signalled by a circle around the page number and the ending page was designated by an X on the page number. The average number of words read per minute was determined by counting the number of words on every tenth page in the readers. An average was taken from these totals and then multiplied by the number of pages in the child's book. It was only possible to allot 15 minutes per day to silent reading during the baseline period which covered a period of three months. During the pupil-teacher procedure, which lasted seven weeks, the teacher was enabled to extend the silent reading lessons to 35 minutes per day because the usual reading groups were not necessary. The average number of words read each day was divided by the number of minutes spent in silent reading to determine the words read with comprehension per minute.

d. Reinforcement system

Correct reading responses were rewarded using a token reinforcement system in the form of poker chips exchangeable for trinkets or more expensive store items that were known to be highly reinforcing. During the baseline period (which occurred in the context of the program described in Chapter III) check marks entered on a 3" x 5" card were employed to reinforce starting, maintaining, and completing assigned work for each period.

In the pupil-teacher phase of the study reinforcement was made solely contingent upon successful completion of the four-step sequence described earlier. Immediately after completing each assignment the pupil was given three tokens and instructed to begin his next sequence. The pupil paid his pupil-teacher with one of his three tokens. Since each pupil-teacher had three or four pupils he assisted, all children in the class could earn approximately an equal number of tokens; usually from 10 to 18 tokens per reading period.

e. Results

The results showed that the silent reading speed of most students was improved (Table V-1). Two of the pupils (five, six) entered the classroom the week prior to the beginning of the pupil-teacher procedure and adequate baseline data could not be gathered; however, pupil six was working with readiness activities during his one week of baseline. Part of the reading material for a seventh pupil was lost and his data could not be accurately computed. The remaining four pupils showed substantial gains from baseline to experimental period.

For comparison with children in general, Taylor, Frackenpohl & Pettee (1960) reported silent reading rates with comprehension to be 80, 115, 138, 158, 173 and 185 for children from first through sixth grades. Their study indicated that all the withdrawn pupils were below expected reading speed during baseline as estimated by their chronological age. After the experimental period five children were silently reading at or slightly above their expected speed. One child, while having made progress, was slightly below average after the seven week experimental period.

One possible criticism of the pupil-teacher technique might be that it would be deleterious to the reading improvement of the pupil-teachers. It was interesting to note that both pupil-teachers made the greatest reading achievement gains (California Achievement Test) during the time which overlapped both baseline and experimental periods. With a five month interval between pre and post tests, the pupil-teachers made total reading gains of 1.4 and 2.6 years.

f. Discussion

The results indicated a significant increase in silent reading rate for pupils when pupil-teachers assisted a special classroom teacher. In addition, the pupil-teachers themselves made considerable reading gains on an achievement test. The teacher reported another advantage of the procedure. It allowed her to plan more efficiently for each day while spending less time on this task. Therefore, she was able to devote more time to other phases of the reading program. These results suggest that this procedure should be especially useful when a class is quite heterogeneous as to chronological age or achievement levels.

Several problems were encountered with this procedure. The pupil-teachers were not always found to be reliable in writing the mistaken oral reading words and could not be depended upon as the sole source of vocabulary review words for the readers. There were several apparent reasons for this. One of the pupil-teachers was a bright but immature seven year old who sometimes succumbed to fear of a pupil getting angry with him. The older pupil-teacher occasionally was swayed by his anticipated share of the reinforcement system. Several changes were adopted to counter the above problems during the second year of the program. Any new vocabulary in the next assignment was reviewed in the first step of the sequence. The teacher rotated more among the pupils reviewing new and old vocabulary words and assisted readers in their silent reading. Finally, as more pupils improved, the number of children that could be used as pupil-teachers increased and the pupil-teachers for each day could vary.

The pupil-teacher technique appears to incorporate several obvious advantages. It aids the pupils in mastery of material by providing an individualized system to check, control and reinforce their progress. It increases the pupils' motivation because they have a chance to experience frequent success in continuous, purposeful activity. The children can work with a minimum of frustration and compete successfully with other members of the class because they work at their own pace receiving immediate reinforcement. Finally, the withdrawn children are spared much embarrassment because no response has to be given in front of the whole classroom, but only in a one-to-one situation.

3. Differences between withdrawn and conduct problem children in various academic areas

A. Reading and arithmetic correlates (Glavin & Annesley, 1971)

Lack of reliability in the description and categorization of emotionally disturbed subjects has been a barrier to the accumulation of reliable and valid data on the educational characteristics of emotionally disturbed children. Recent studies (Peterson, 1961; Quay & Quay, 1965; Quay, Morse & Cutler, 1966) have used factor analytic techniques to discover statistically homogeneous dimensions of problem behavior in school children. These studies, among others, have resulted in procedures making it possible to describe and classify children being served in any given program according to the principal constellations of deviant behavior. The major purpose of this study was to explore systematically the suggested system of grouping, to determine academic achievement correlates of the various categories of emotionally disturbed children and to ascertain the feasibility of a differential curriculum for the various groups.

Additional objectives of this study were to explore achievement levels in arithmetic and reading, differences between reading and arithmetic total scores, and concrete versus cognitive types of skill proficiencies in 130 children referred by their teachers as behavior problems. To accomplish these goals, an investigation was conducted on the academic achievement of behavior problem children as a total group and then on the two major behavioral categories, i.e., conduct problem and withdrawn children.

Review of Research

Most studies of the relationship between emotional disturbances in children and academic achievement indicated that many of these children were deficient in reading and arithmetic. Some studies suggested that there was greater relative underachievement in arithmetic than in reading when compared with their normal classmates (Bower, 1960; Tamkin, 1960; Stone & Rowley, 1964; Schroeder, 1965). Other studies by Motto & Lathan (1966) and Graubard (1964) indicated no significant differences between the two academic areas. Stone & Rowley advanced an hypothesis to explain this discrepancy in the findings. They pointed out that actual grade placement may play a significant role as far as differences between reading and arithmetic scores were concerned, because a child's achievement in the latter area was more related to and limited by classroom instruction than his achievement in reading.

Some speculation has been made concerning categories of emotional disturbance and their relationship to academic underachievement. Werry (1968) reported that hyperactive children exhibited a tendency to be underachievers. Rabinovitch (1959) stated that "...The largest percentages of male underachievers were in the neurotic with acting-out (delinquent) and primitive neglected (culturally deprived) groups." Graubard's (1964) study of underachievement supported these findings on the grounds that all his subjects had been adjudicated to the care of the residential treatment center on either a delinquency or neglect petition. Only one child in his sample of twenty was at his expected achievement level in reading comprehension and all children showed some degree of disability in arithmetic computation.

Procedure

Behavior problem children were operationally defined as children exhibiting behavior so deviant to their teachers as to require referral to a special class or resource room for placement. Only boys (N=130) were studied so as to simplify data interpretation. All children spoke English as their primary language, ranged in grade from second through sixth, and were from the inner city schools of Philadelphia.

IQ scores derived from the Lorge-Thorndike Intelligence Test (1964) were utilized whenever possible because of the large number of children involved in this study. Approximately half of the children were individually administered the Slosson Intelligence Test (1965) which is a short test for estimating children's intelligence. Comparisons of the test with the 1960 Stanford-Binet yielded nearly identical means and standard deviations as well as validity coefficients of better than .9 across all age levels (Slosson, 1965).

The California Achievement Tests (CAT) were administered to the children to determine actual achievement levels. The CAT is a comprehensive battery which yields separate scores in reading comprehension and vocabulary, and arithmetic reasoning and fundamentals. Tiegs & Clark (1965) reported that these subtest scores have reliabilities between .79 and .95.

Bond & Tinker's (1967) formula was used to estimate expected academic achievement levels. Each child's expected grade score was calculated by the formula (years in school x I.Q.) + 1.0, adding 1.0 since his grade score was 1.0 upon entering first grade.

The amount of discrepancy considered as over or underachievement between actual academic achievement grade and expected achievement grade increased as the child grew older. This discrepancy was subdivided into mild, moderate and extreme classifications. For instance, in the second grade, minimum cut-off points of one-half (mild) and one grade difference (extreme) were used to classify the child in terms of over or underachievement. In the intermediate grades, a minimum difference of one (mild) to two grades (extreme) was used. The cut-off points were modifications of those suggested by Bond & Tinker (1967).

The children then were classified as either conduct problem or personality problem (anxious-withdrawn). A student was considered a conduct problem if he received a score of nine or higher on the conduct problem scale of the checklist and five or less on the personality problem scale. The same procedure was used to select personality problems but a score of five or higher in that category was selected as qualifying the student if his score in the conduct problem category did not exceed two. If a child manifested a combination of two or more problems he was not included in the behavioral-academic functioning comparison. With the above criteria 34 children were classified as conduct problems and 9 as withdrawn. Between group comparisons were made on all variables to determine the extent to which there was homogeneity between behavioral characteristics and achievement in reading and arithmetic.

Results

The amount of discrepancy for over and underachievement between actual academic achievement grade and expected achievement grade for all 130 children is shown in Table V-2. For the total 260 comparisons including both reading and arithmetic, five comparisons showed overachievement in one of the two subject areas (1.9%), 55 comparisons achieved at their expected level (21.2%), while 200 comparisons showed some degree of underachievement (76.9%). The greatest amount of underachievement was shown in the extreme category (43.8%) as compared to moderate (24.6%) and mild (8.5%).

Analysis of the data in Table V-2 by academic area showed that 81.5 percent of the boys were underachieving in reading and 72.3 percent in arithmetic. For both reading and arithmetic the single most populous category was extreme underachievement.

For comparative purposes, a stratified random sample of children who had not been referred by their teacher as a behavior problem was used to determine local norms. As shown in Table V-2, although the normal children had a greater amount of underachievement than expected, the data indicate that the normal children were operating at a higher level of achievement than the behavior problem children in both academic subjects.

The differences between reading and arithmetic total scores for all children were tested on a two-tailed $\underline{t}$ test for correlated data. The correlation between the academic areas was .86. The results showed significantly higher arithmetic total scores beyond the .001 level.

Measures which, hypothetically, should tap conceptual or cognitive skills, e.g., reading comprehension and arithmetic reasoning, were compared to results from tests relying more upon concrete skills, e.g., reading vocabulary and arithmetic fundamentals. The results showed that the pupils scored significantly higher on concrete skill sections of the California Achievement Test with the arithmetic fundamentals subtest supplying the gr ater weight.

The children classified on the basis of the Behavior Problem Checklist into conduct problem (N=34) and withdrawn (N=9) were then compared on the CAT subtests (Table V-3). No significant differences were found between the two groups on reading comprehension and vocabulary, and arithmetic reasoning and fundamentals.

Discussion

The extreme underachievement shown by a large percentage of the behavior problem children deserves special emphasis, since it has been assumed by some persons working with these children that if emotional problems were treated, the learning problem would disappear. Consequently, they had stressed therapy and a non-demanding classroom environment which has had the effect of minimizing academic studies. However, Graubard (1964) reported that 95 percent of institutionalized children were deficient in reading by an average of three years below expectancy--even after more than two years of residential psychiatric treatment and their return to community living. This strongly suggests that if emotional problems are treated, the learning problems do not disappear unless this becomes a primary classroom objective. Furthermore, as noted in Chapter II, when greater emphasis was placed on academic achievement, both the children's academic gains and their behavior improved significantly. Their results tend to refute the commonly held attitudes that the bad behavior or "conduct problems" must be changed before academic achievement can be stressed and, secondly, that if academic achievement is required from the conduct problem child, he is likely to "blow up."

The finding that arithmetic total scores were significantly higher than reading total scores was contrary to past research. The disagreement of results on this topic may be due to differences in the samples of children in the various studies. The children included in the present study were from inner-city schools and from low socioeconomic backgrounds. Stone & Rowley's (1964) hypothesis that a child's achievement in arithmetic was more related to and limited by classroom instruction than his achievement in reading is less likely to be relevant for children from low socioeconomic backgrounds, since it is improbable that their home environments provide enriched reading opportunities. Secondly, the finding that the pupils scored significantly higher on concrete skill sections of the California Achievement Test, particularly the arithmetic fundamentals subtest, suggests that greater emphasis should be placed on the development of the necessary conceptual skills required for reading.

Finally, a surprising outcome in this study was that no significant differences were shown between the two behavioral groups on reading comprehension and vocabulary, and arithmetic reasoning and fundamentals. Since the academic achievement correlates of these two categories of emotionally disturbed children are not significantly different, it would appear that a differential curriculum is not necessary at this time. However, grouping by separate behavioral categories into special classrooms would appear to be advisable because of different teaching styles, methods of presentation, management techniques, and the dissimilar reactions of the two groups to reinforcement contingencies (Quay, 1963). Grouping by behavioral categories in special classroom settings where the children are relatively self-contained throughout the school day, is more important than in the resource room setting where the children come to the resource room for only one or two hours a day.

B. Spelling errors of withdrawn and conduct problem children
(Glavin & DeGirolomo, in press)

This study investigated the neglected area of spelling disabilities among disturbed children. Previously Kitano (1959) had made the only direct study on the spelling ability of disturbed children. Consideration of some common characteristics of adjustment class (disturbed) children such as poor school adjustment, lower reading ability, anxiety, rigidity and poor ego controls led to the hypotheses that: (1) adjustment class children would be poorer spellers than regular class children and (2) they would make different types of errors. He found that while regular class children made significantly more correct responses and more "external errors" (additions, omissions, phonics, substitutions), the adjustment class children made significantly more errors due to what Kitano called "personal deficiency." External errors were defined as those associated with the irrationality of English spelling, while refusals to attempt the word and unrecognizable spelling were characterized by deficiencies within the pupil. The spelling patterns delineated by Kitano are consistent with observations of another group of handicapped children. Several investigators (Boder, 1968; Kinsbourne & Warington, 1962; Myklebust, 1965) found that children with developmental dyslexia are to some extent a heterogeneous group, as shown by their reading and spelling errors which tend to be highly varied. The The current research sought to examine further the problem in two separate surveys comparing the quantity and type of errors made by children in social-emotional adjustment classes with those made by children in regular classes.

i. First Survey

Data were obtained from school records of children enrolled in a public elementary school in a large Midwestern city. The adjustment class consisted of nine boys diagnosed as socially maladjusted. They were equated with regular class boys on spelling grade level as indicated by the Metropolitan Achievement Tests (Durost, et al, 1960) and on IQ, CA, and Socioeconomic Status (SES). To obtain a more definitive depiction of the learning capacities of the disturbed children, individual IQ tests were administered. The IQ scores of the regular class children were obtained from the Kuhlmann-Anderson (1927) group IQ scales were equivalent to the Stanford-Binet (Terman & Merrill, 1960) and Wechsler (1960) IQ's of the disturbed children. According to school records, all subjects were of low SES. There was no significant differences between the means of the two groups on spelling achievement level, CA, and IQ.

Twenty spelling words were chosen from Gates' *List of Spelling Difficulties in 3876 Words* (1937). Slips of paper were numbered from 11 to 166, corresponding to the pages of Gates' list. After a number was drawn, the word on that page which was at the appropriate grade placement was chosen. If two or more words were suitable, they were written on slips of paper and one was drawn. The method of error classification was that used by Kitano (1959). The types of classification were: (1) Additions and insertions of letters: (2) Omissions of letters: (3) Phonetic errors: (4) Substitutions of letters and words and reversals of letters: (5) Words refused or not completed: and (6) Unrecognizable spelling.

The experimenter presented the spelling test to the regular class children and the adjustment class teacher administered it to his class. Administrations were identical: the word was read aloud, the *sentence developed by the experimenter was read*, and the word was repeated. Analysis of spelling errors was done by the experimenter.

Following Kitano's method, a comparison of the type of errors was made by groups. The Mann-Whitney *U* Test (Seigel, 1956) was substituted for the Chi-Square test because of the small size of the sample of disturbed children. Based on Kitano's findings, it was predicted that the adjustment class children would make more total errors, more "internal" errors and fewer "external" errors. The *U* values were evaluated using a one-tailed test at the .05 level of significance.

Table V-3 presents a summary of the findings. The adjustment class pupils made significantly more total errors and more errors by words refused. Unrecognizable spelling approached significance at the

.05 level. Of the 68 unrecognizable errors made by the adjustment class, 67 were made by four of the nine pupils. This distribution of this type error suggested that the adjustment class group might contain two distinct groups: a hypothesis which was examined in the second survey.

II: Second Survey

Fifteen boys enrolled in the experimental classes conducted in 1967-68 served as experimental subjects; 10 were conduct problem and five were personality problem (see Chapter IV). Background data on the behavior disorder groups were obtained from school and research project records. The cumulative records of grades two through four at the host school for the research classes and at another school within the district were utilized in securing 15 regular class controls. Groups were equivalent on spelling achievement (California Achievement Test), CA, and IQ, as in the first survey.

The methods of error classification and the presentation of the test were as in the earlier survey. The same 20 spelling words were presented to those whose achievement scores were below a 2.9 grade level. The procedure followed in the first survey was used to construct appropriate tests for the two boys and their regular class matches who scored within third and fourth grade levels.

It was hypothesized that the withdrawn children would make more unrecognizable spelling errors while the conduct problem children would refuse to write the spelling words. Otherwise, direction of expected differences on spelling errors between both groups of disturbed children and the regular-class children was the same as the first survey. Analysis of the spelling errors was again made by the experimenter. Statistical analyses were equivalent to those used in the initial study. Because of tie scores, the U values derived from the Mann-Whitney Test were conservative.

Table VII-4 presents a summary of the findings. The behaviorally disordered children made significantly more total errors, errors of omission and substitution than the regular-class children. The larger number of "internal" errors of words refused and unrecognizable spelling made by the disordered group approached significance.

The analysis of "internal" errors made by subgroups of withdrawn and conduct problem children suggested that each made a different type. The withdrawn pupils wrote significantly more unrecognizable spelling words, while the conduct problem children made significantly more refusals when compared to each other and to the controls. While Kitano failed to equate his groups on spelling achievement, this additional control was included. The results of the comparison of total errors and "internalized" errors partially supported Kitano's findings. There were substantially more errors and significantly more "internal" errors in the adjustment groups. There was no clear trend regarding "external" errors.

The "internal" error differences shown in the analysis by subgroups of disturbed children suggests that Kitano's (1958) study on anxiety and rigidity in disturbed pupils should be re-examined. He found that adjustment class children had significantly higher anxiety and rigidity scores than regular-class children. The withdrawn children in the present study, because of selection criteria for the experimental classrooms, were very anxious, which may have caused them to attempt to conform by writing unrecognizable spelling words, while the overt rebelliousness of conduct problem children may have led to the frequent refusals to attempt the word.

It was Boder's (1968) belief that specific developmental dyslexia had a neurologic basis. She found that children with this problem had unique patterns of spelling errors. She pointed out that nonspecific reading disorders may have a variety of nonspecific causes, including emotional disorders. She believed that the spelling errors of the nonspecific reading disordered children were quantitatively but not qualitatively different from those of a normal reader. The present study indicated that children with emotional problems without a known neurologic basis may also show patterns of spelling errors which differ both quantitatively and qualitatively from that of normal children.

Chapter VI

Some Reflections on Behavior Modification in the Classroom: Problems and Promises

Despite the apparent simplicity of both the theory and its implementation there are a host of problems for both the researcher and the action program director which our experience and that of others (e.g., Baer, Wolf & Risley, 1968; O'Leary & Drabman, in press) has revealed. Certain of these considerations are particularly relevant to research; others are more pertinent to program operation.

Problems pertinent to research design and methods

There are a number of research designs which have been widely adopted in studies of the effect of contingent reinforcements. A feature common to all of them is the selection of an observable behavior whose frequency is to be either increased or decreased by the application of the reinforcer. Then follows the measurement of the frequency of this behavior as it "naturally" occurs in the particular setting to be utilized. It is generally recommended that these pretreatment, operant level, or baseline measures be taken over a long enough period of time so that the rate of their occurrence can be assumed to be stable, i.e., neither exhibiting an increasing nor decreasing trend.

It is at this initial point that the first problem seems to arise in classroom research. Recall that the data obtained from our control children in first year of research in the resource room showed a tendency for attending behavior to increase and deviant behavior to decrease over the course of the school year. Considering that these control children were in a variety of different regular classes their improved behavior cannot be attributed to any specific factors associated with a single teacher, classroom, etc. While individual variability is large in both control (and experimental) groups the trend toward a decrease in overall deviant behavior is clear. Thus, it is likely that inferences about decreases in deviant behavior in the experimental group based solely on changes from a relatively brief baseline period would have been confounded by an already established trend toward a decrease in such behavior over time in the absence of any specific interventions. Thus it appears to us that in a situation where as many factors impinge on behavior as in a public school classroom the question of when the operant level has become stable must be carefully considered. In our particular circumstance there was really no such stability over the entire school year.

The second common element of operant designs involves the contingent application of the reinforcing stimulus. Without dealing with the question of what is reinforcing, sometimes a real problem for the applied behavior modifier, there are other problems for the classroom researcher. In the classroom setting it frequently appears that while the researcher may have one (or more) reinforcers under his control there may well be others in the situation which are not. Our early experience with conduct problem children made us aware that peer reinforcement was most often contingent upon deviant rather than cooperative behavior. How to control, or at least minimize, the effect of peer reinforcement was, for us, a continuing problem from both research and operational points of view.

"Hidden" reinforcers dispensed unwittingly by teachers, administrators and parents can also have a confounding influence. While it is unlikely that these can be completely controlled in the school setting their possible presence and influence should be recognized and controlled where possible. It is fortunate that the tangible and social reinforcers which can be controlled and contingently applied by the teacher are powerful enough, in most cases, to bring about substantial behavioral change even in the face of the operation of other reinforcers not contingent on the desired behavior.

After the period in which contingent reinforcement is applied and the rate of the behavior increases (or decreases) a number of methods may be used in the third stage of the design. Perhaps the most common strategy is simply to remove the reinforcer and thus, in theory, return to the free operant condition. The expectation is that the target behavior will increase (or decrease) in frequency to its original level. Such an outcome is taken as evidence that the reinforcer produced the change in the rate of the target behavior, particularly if the reinforcement period is again instituted with a corresponding change in the target behavior. Strictly speaking, the return to baseline condition presumes that all other factors operating during the original baseline period are also the same.

In the classroom it is unlikely that this condition is ever substantially met. The children, if they have learned effective academic behaviors in the reinforcement period, have concurrently come, at least to some extent, under the control of secondary reinforcers, including task completion, and "achievement." Then too, it may be difficult for the teacher to return to whatever it was that she may have been doing before. Her "natural" style may now include contingent use of praise and attention making it very difficult for her not to use such reinforcers in a manner consistent with the original baseline condition.

One must also be aware that some response rates, especially on academic tasks, may have been permanently altered by the process of knowledge and skill acquisition. Responses to academic tasks are obviously complex and it is clear that cognitive development and skill acquisition change the child's response repertoire and response rate. After six months of contingent reinforcement in academic tasks the child is simply not the same organism that he was at the beginning of the school year. This is of course what is implicit in the concept of development.

An alternative technique at this third stage in the typical research design sometimes involves switching the reinforcer to some other behavior and then observing the decrease in frequency of the original target behavior and the increase in frequency of the other behavior. One may, for example, make reinforcers contingent upon not being in one's seat rather than being in one's seat or upon aggressive verbalizations rather than cooperative behaviors. Where both the target and the "other" behaviors are simple this technique can provide a rather dramatic demonstration of the effectiveness of the particular reinforcer being used. In the classroom setting, however, the target behavior may be complex. Reinforcers may be contingent upon "task completion at 90% accuracy" which is itself a function of a variety of other behavioral elements. Reinforcing not completing a task or some set of behaviors inhibitory of task completion may be somewhat difficult to do.

There is also a very practical problem associated with this technique. Teachers and administrators are understandably reluctant to reinforce behaviors inappropriate to school success for the purpose of demonstrating what no doubt seems self-evident at the time--the children are behaving better and learning more. This obstacle is not insurmountable but the use of this technique in the public school classroom does raise some issues in public relations if not actually in ethics.

The final stage in the design is very frequently a reinstatement of the contingent reinforcer(s) for the desired behavior. This aspect of the research design does not seem to present any particular problems beyond those discussed in regard to the original reinforcement period, except perhaps a "loss of novelty" attenuation of effect.

Problems pertinent to operational programs (e.g., Kuypers, Becker & O'Leary, 1968)

Our experience, as well as that of others, has served to point up a number of practical problems associated with the use of reinforcement procedures in the education of the behaviorally disordered child.

At the outset it should be understood by all parties to the effort that a lack of responsivity to the natural reinforcers of the classroom may demand the use of edibles, manipulables or money reinforcers. Effective reinforcers may have to be quite primitive if the child's behavior is to be changed. Philosophical and pseudo-ethical concerns in regard to these artificial reinforcers notably notions of "bribery" of children may have to be dealt with directly. In view of the prognosis (O'Neal & Robins, 1958; Weiss, Minde, Werry, Douglas & Nemeth, in press) of conduct problem children one can easily justify such benign, although educationally unconventional, means to produce effective social and academic behaviors, (provided of course they are effective).

Another philosophical issue frequently raised is that of a depersonalization of the student-teacher relationship. One needs only to observe many classrooms for the socially deviant (or inner-city child) to recognize that almost any relationship would be better than the existing conflict-ridden nature of teacher-pupil contact. In point of fact reinforcement techniques properly used can result in the teacher's becoming a powerful social reinforcer for the child. And, just as importantly, the increasing amount of effective behavior exhibited by the children are potent reinforcers for her. Such a dyad of mutual positive reinforcement for effective behavior of both teacher and pupil in the classroom is the essence of a good teacher-pupil relationship.

Another criticism relates to the supposed stifling of teacher creativity by the mechanistic-appearing nature of the procedure of the identification of precise behaviors and their consequences. Nothing could be further from the truth. The selection of target behaviors, the choice and programming of materials are but a few of the major aspects of the method in which teacher creativity can be, and frequently must be, expressed. The specification of desired results and the measurement of outcome, serve as a spur to teacher creativity since they can provide her with concrete evidence as to the success of her efforts.

We have already discussed problems of peer reinforcement for deviant behavior and hidden reinforcers from teachers, administrators and parents as they affect research design and the interpretation of research results. The necessity of controlling, as much as possible, these extraneous reinforcers is no less crucial to the educator concerned with the practicalities of the classroom.

In laboratory research it is frequently the practice to increase the potency of a reinforcer (e.g., food) by manipulating the deprivation state of the subject (e.g., so many hours food deprivation). While the manipulation of deprivation states is not quite so simple in the classroom it can and sometimes must be done. In the early stages of our own work we asked parents not to include desserts in our children's lunches so that candies and cookies available through redemption of tokens would more likely be reinforcing. With the economically underprivileged, deprivation states sometimes do not have to be artificially induced. Fruit punch and cookies available at 10:00 A.M. may be powerful reinforcers for the child who has come to school without breakfast.

At the beginning of a classroom program for the behaviorally disordered, immediate delivery of the reinforcers (either the primary reinforcers or the token reinforcers) seems crucial. This often presents logistical problems. Teachers and assistants need to give help to children and to provide instruction as well as disburse reinforcers. Nothing else may be quite so frustrating for the child and quite so likely to cause deviant behavior in search of an immediate reinforcer as completing a response or unit of work and having to wait for the reinforcer.

Many solutions have been proposed. The teacher assistant can function solely to assess responses and disperse rewards while the teacher instructs and helps. Unfortunately this tends to retard, or perhaps inhibit altogether, the speed with which the teacher's approval behaviors can become reinforcers themselves. Automation of response counting and reinforcing is a possibility especially in conjunction with computerized instruction, but the technical problems encountered and costs are likely to be beyond the capabilities of the public schools at the present time.

Self-recording and self-reinforcing has also been suggested. Obviously, however, these behaviors must themselves be learned by the children. Opportunities for dissimulation are also inherent and will be readily seen, especially by conduct problem children. More research is needed in the use of this approach or at this juncture it may create more problems than it solves.

Conduct disorder children have frequently developed sets of behavior which have produced short term gratification from others because these behaviors are aversive to adults and the adult is reinforced when the child stops emitting them. Many of these behaviors may be characterized, perhaps loosely, as manipulative. Such behavior will, at least at the outset, be utilized in an attempt to get the reinforcers without making the appropriate responses. These manipulative responses are already strong ones in the repertoire and frequently require less effort than the "correct" responses. Wheedling, crying, scapegoating, rationalizing, threatening, physically aggressing may all fit this description.

Children are also very clever at finding either logical or mechanical inconsistencies and weaknesses in the administration of the token reinforcement system. The clock system of recording time-on-the-job used in the first year of our research was the frequent object of attempts to "beat the system." When the teacher was at her desk or occupied with another child and thus less likely to detect deviant behavior some children would stop work until the teacher noticed and moved to stop their clock, when they would quickly recommence.

None of these problems are insurmountable. Their existance and likely appearance simply need to be recognized so that their efforts do not result in the abandonment of an otherwise effective intervention effort. Human variability is great and no method is likely to be equally effective for all children in all settings.

At this juncture in the development of the field our own results and the accumulating data of other investigators (see O'Leary & Drabman, in press) have convinced us that the utilization of techniques developed from the principles of reinforcement theory are the best available for the education of the behaviorally disordered child in the public school setting.

Further research in the application of these techniques in a variety of in-school settings can promise a hierarchy of effective intervention strategies keyed to the severity and persistence of the deviant behavior of the individual child.

Footnotes

1. Much of the material that follows provided the basis for Werry & Quay, 1968.

2. The program from which the data on conduct problem children was taken is described in greater detail in Chapter III and in Glavin, Quay & Werry, in press.

3. For a description of the recreation program see Glavin & Witt (1969).

4. A modification of this procedure was introduced for purposes of an experiment-within-an-experiment in the class of personality problem children for a seven week period (see Chapter IV).

5. Studies either already published or in press are described only briefly. Reprints may be obtained from the respective authors.

Table II-1

Interobserver Reliability
(N=145 Paired Observations)

Behavior Categories	r	Mean Percentage of Ratio Agreement	Zero Pairs
Deviant Behaviors			
No deviant	.93	79.9	5
Out of seat	.85	86.6	80
Physical contact	.63	95.9	125
Noise	.87	70.2	14
Turns	.84	73.2	26
Vocalizations	.89	76.9	21
Other	.78	70.1	15
Times out	.99	98.2	121
Attending Behaviors			
Attending	.94	89.1	2
Irrelevant activity	.97	82.2	10
Daydreaming	.19	94.5	126
Teacher contact			
Total	.96	88.6	8
[a]Teacher initiated+	.94	84.7	3
[a]Teacher initiated-	---	100.0	52
[a]Pupil initiated+	.87	77.8	7
[a]Pupil initiated-	.86	84.2	14

[a] N = 52

Table II-2

Mean Frequency in Percent of Behaviors in Normal and Conduct Problem Children

Items	Normal Children			Conduct Problem Children									Significantly different pairs of means[a]		
	1. (N=10)			2. 1967 (N=11)			3. 1968 (N=12)			4. Preentry (N=11)					
	$\overline{X}$	SD	Rank	$\overline{X}$	SD	Rank	$\overline{X}$	SD	Rank	$\overline{X}$	SD	Rank			
Deviant Behaviors															
**No deviant	59.3	17.3		46.3	14.4		60.3	10.8		39.4	15.5		1,4		3,4
**Out of seat	9.2	11.4	4	7.7	4.3	5	12.3	4.5	3	24.8	20.6	3	1,4		2,4
*Physical Contact	2.1	2.5	5	1.2	0.8	7	1.0	0.4	7	3.8	3.6	6	2,4		3,4
**Noise	0.6	1.1	6	14.7	7.6	2	9.2	4.8	4	15.2	5.7	4	1,2	1,3	1,4
Turns	9.7	6.5	3	11.0	5.3	4	6.3	3.6	5	12.7	7.2	5			
**Vocalization	12.7	9.9	2	12.3	6.4	3	18.4	6.7	1	28.7	16.0	2	1,4		2,4
**Other deviant	14.7	10.2	1	20.7	10.2	1	13.8	6.4	2	33.6	12.6	1	1,4	2,4	3,4
Isolation	0.0	0.0	7	6.2	6.6	6	2.8	2.5	6	0.0	0.0	7	ANOVA not valid		
Attention															
**On task	77.0	15.4		69.3	16.9		84.1	8.8		53.7	12.8		1,4	2,4	2,4
**Irrelev. Activ.	22.6	13.9		29.3	16.7		18.1	9.9		43.8	14.0		1,4	2,4	3,4
Daydreaming	0.6	1.2		0.5	0.5		0.2	0.3		0.8	1.0				
**Teacher contact	0.5	±0.8		41.0	±8.4		42.0	16.9		23.5	16.4		all except 2,3		
Teacher initiated+							28.2			15.7					
Pupil initiated+							10.0			5.0					
Pupil initiated-							4.0			7.6					
Age															
Mean (months)	107			108			112			97					
Range (months)	90-132			91-132			89-131			90-132					

*F ratio (df 3/40) p=.05

**F ratio $p \leq .01$

[a] As determined by Newman-Keuls procedure

Table II-3

Correlations Between Selected Items in Two Classes for Conduct Problem Children

1967-1968 School Year

Behaviors	N_1=685 1	N_2=586	2		3		4		5		6		7	
1. Out of Seat														
2. Noise	.07	.21												
3. Turns	.01	.05	.12	.17										
4. Vocalizations	.12	.38	.06	.29	.31	.18								
5. Other	.07	.20	.35	.38	.31	.39	.03	.24						
6. Isolation	.00	.06	.14	.11	-.02	-.05	.19	.14	-.07	-.04				
7. On task	-.11	-.28	-.38	-.35	-.43	-.35	-.33	-.41	-.64	-.65	-.51	-.55		
8. Teacher contact	.07	-.11	-.01	.10	-.13	.11	-.30	.01	.12	.09	-.06	.14	.16	.01

Correlations with No Deviant score

On task .77 Teacher contact .10 -.07

Table III-1

Mean Behavior Scores in Percent (N=8)

Time Block	No Deviant	Out of Seat	Attending
1 (Baseline)	54.6	8.6	70.7
2 (Dec.-Jan.)	47.5	3.5	70.8
3. (Feb.-March)	46.7	5.1	69.7
F Ratio	12.8*	4.61*	.037
*Significant difference between group means	1 vs. 2 1 vs. 3	1 vs. 2	none significant

Table III-2

Pre and Post Achievement Scores for the Core Group (1966-67)

Subject	Reading			Arithmetic		
	Pre	Post	Gain	Pre	Post	Gain
1	2.4	2.6	0.2	2.6	3.0	0.4
2	1.1	1.8	0.7	3.9	3.2	-0.7
3	1.5	2.0	0.5	2.4	2.6	0.2
4	3.8	3.8	0.0	4.2	3.6	-0.6
5	1.7	2.3	0.6	2.8	3.0	0.2
6	4.5	6.8	2.3	1.4	1.9	0.5
7	4.5	4.4	-0.1	4.2	3.6	-0.6
8	1.4	1.5	0.1	2.2	3.6	1.4
Means			.53			.10

Table III-3

Effect of Reinforcement on Attending Behavior (1967-68)

I = Baseline (Day #1-50)   II = Reinforcement (Day 51-120)
III = 2nd Baseline (Day 121-130)

Child.	50 days		70 days		10 days					
	I		II		III					
	$\overline{X}$	SD	$\overline{X}$	SD	$\overline{X}$	SD	F	t IvII	t IvIII	t IIvIII
1	72.9%	15.45	80.5%	16.9	88.1%	14.3	=.01	.02	<.01	NS
	*N=35		N=53		N=10					
2	86.5%	17.1	88.5%	14.2	92.4%	7.9	NS	NS	NS	NS
	N=39		N=65		N=10					
3	69.6%	25.7	77.5%	17.8	76.2%	23.7	NS	<.10 >.05	NS	NS
	N=35		N=55		N=10					
4	89.7%	12.2	95.3%	6.3	95.0%	6.4	.02	<.01	NS	NS
	N=38		N=51		N=9					
5	80.2%	16.7	90.4%	9.2	87.8%	7.6	.001	<.001	NS	NS
	N=39		N=67		N=10					

*Number of observations

Table III-4

Mean Frequency in Percent of Behavior of
Conduct Problem Children in Different Classroom settings

Items	1967 (N=11)		1968 (N=12)		't" value
	Mean	SD	Mean	SD	
Deviant Behaviors					
No deviant	46.3	14.4	60.3	10.8	2.64**
Out of seat	7.7	4.3	12.3	4.5	2.51**
Physical Contact	1.2	0.8	1.0	0.4	0.22
Noise	14.7	7.6	9.2	4.8	2.05*
Turns	11.0	5.3	6.3	3.6	2.47**
Vocalization	12.3	6.4	18.4	6.7	2.23**
Other deviant	20.7	10.2	13.8	6.4	1.64
Isolation	6.2	6.6	2.8	2.5	1.61
Attention					
On task	69.3	16.9	84.1	8.8	2.61**
Irrelevant activity	29.3	16.7	18.1	9.9	1.93*
Daydreaming	0.5	0.5	0.2	0.3	0.40
Teacher contact	41.0	8.4	42.0	16.9	0.18
Age					
Mean (months	108		112		
Range (months)	91-132		89-131		

* t.10 = 1.804 for two tailed test
** t.05 = 2.214 for two tailed test

Table III-5

Pre, Post and Gain Scores on the California Achievement Test for the Three Classes (1967-68)

Subject	Reading Pre	Reading Post	Reading Gain	Arithmetic Pre	Arithmetic Post	Arithmetic Gain	Language Pre	Language Post	Language Gain
YOUNGER CONDUCT PROBLEM									
1	1.4	1.8	.4	2.0	3.7	1.7	1.3	1.6	.3
2	1.2	1.9	.7	1.5	3.8	2.3	1.5	1.7	.2
3	1.6	2.9	1.3	1.6	3.9	2.3	1.7	2.8	1.1
4	1.8	2.4	1.4[1]	1.7	3.6	2.0[1]	1.7	3.1	2.3[1]
5	3.5	4.9	3.2[1]	2.4	4.1	3.8[1]	2.1	3.4	2.9[1]
Mean			1.4			2.4			1.4
OLDER CONDUCT PROBLEM									
1	2.7	3.6	.9	2.8	3.5	.7	3.3	3.8	.5
2	2.5	3.3	.8	2.8	3.8	1.0	2.4	3.6	1.2
3	2.9	6.5	2.6	4.0	6.1	2.1	4.1	6.9	2.8
4	2.8	3.9	1.1	3.7	5.3	1.6	3.2	4.1	.9
5	4.1	5.3	1.4[2]	3.9	4.9	1.2[2]	3.0	4.6	1.9[2]
6	2.0	3.9	1.9	2.7	4.2	1.5	2.5	3.8	1.3
Mean			1.5			1.4			1.4
PERSONALITY PROBLEM									
1	1.2	1.9	.8[2]	1.0	1.8	1.0[2]	1.5	1.8	.4[2]
2	1.7	2.7	1.0	1.2	1.9	.7	1.8	2.1	.3
3	1.5	3.9	3.3[3]	1.4	3.2	2.5[3]	2.0	3.7	2.3[3]
4	1.3	1.8	.7[3]	1.8	3.1	1.8[3]	1.4	2.0	.8[3]
5	1.7	1.8	.1[3]	2.2	3.4	1.7[3]	2.2	2.2	0[3]
6	4.9	6.3	4.2[4]	2.6	3.8	3.6[3]	3.4	3.8	1.2[4]
Mean			1.7			1.8			1.2

1. Actual gain multiplied by 9/4 (see text)

2. Actual gain multiplied by 9/7.5

3. Actual gain multiplied by 9/6.5

4. Actual gain multiplied by 9/3

Table III-6

Achievement Difference Scores for Special Class Groups in Different Settings

Subject	1967[a]			1968[b]			t	sig
	N	$\bar{X}$	SD	N	$\bar{X}$	SD		
Reading	8	.53	.72	8	1.21	.67	1.96	$\leq .10$
Arithmetic	8	.10	.71	8	1.65	.54	4.90	$\leq .001$

[a] Based on Wide Range Achievement Test
[b] Based on California Achievement Test

Table IV-1

Characteristics of Control and Experimental Groups
in the first year (1968-69)

			Beh. Prob. Checklist Scores*						Pre-Test Achievem.	
Group		C.A.	I	II	III	IV	I.Q.	Grade	Read.	Arith.
	$\overline{X}$	10.0	11.2	5.3	4.1	1.9	84.5	4.3	2.2	2.1
Experim.	SD	1.7	5.1	4.0	2.2	1.8	7.9	1.3	1.2	0.76
	N	27	27	27	27	27	27	27	25	16
	$\overline{X}$	9.4	9.9	5.8	3.5	1.2	91.7	4.2	2.6	2.1
Controls	SD	1.5	4.7	4.4	2.6	1.9	11.1	1.5	1.7	0.96
	N	34	34	34	34	34	34	34	29	13

* I Conduct Problem
II Personality Problem
III Inadequate-Immature
IV Socialized Delinquent

Table IV-2

Gain Scores for Experimental and Control Groups
on Achievement Tests (1968-69)

	Experimental			Control				
Subject	N	X	SD	N	X	SD	t	sig.
CAT Reading								
Vocabulary	25	0.63	0.71	29	0.51	0.58	0.70	n.s
Comprehension	25	0.74	0.69	29	0.21	0.89	2.41	p <.02
CAT Arithmetic								
Reasoning	16	1.00	0.70	13	0.75	0.61	1.04	n.s.
Fundamentals	16	1.55	0.53	13	0.61	0.69	4.47	p <.001

Table IV-3

Mean Percent Occurrence of Behaviors in Controls and Experimentals Before and After Admission (1968-69)

	Controls (N=14)		Experimentals (N=15)		
ITEM	Pre	Post	Pre	Reg. Class	Resource Room
*No deviant behavior	22.8	44.7	23.9	41.8	60.2$^+$
*On Task	43.2	60.6	46.2	52.0	77.2$^+$
Positive-Teacher-Pupil Interaction	10.2	8.5	8.3	7.9	22.0$^+$

* Significant (p $\overline{<}$.05) "spontaneous improvement" effect in both groups on this item.

+ Significant (p $\overline{<}$.05) difference between Experimentals and Controls.

Table IV-4

Early and Late Classroom Behavior--Observations of Experimental Children in Resource Room and Regular Class (1968-69)

ITEM	Pre-entry (P)	Resource Room (R) 1/12	Resource Room (R) 3/12	Regular Class (C) 1/12	Regular Class (C) 3/12	Significance
No Deviant	22.5	58.8	66.3	32.1	41.1	<.001 PvR R_3vC_1
On Task	44.0	76.6	79.1	42.7	47.5	<.001 PvR PvC
Positive Teacher Pupil Interaction	7.7	17.8	20.4	5.9	7.8	<.001 PvR RvC PvC_1

Table IV-5

Characteristics of Experimental and Control Groups (1969-70)

	EXPERIMENTAL (N=69)		CONTROL (N=48)	
Category	$\overline{X}$	SD	$\overline{X}$	SD
CA	120.28	19.60	119.75	19.01
Grade	4.50	1.32	4.17	1.27
I.Q.	90.09	11.97	91.31	12.67
Conduct Prob.	11.62	4.14	10.33	5.26
Pers. Prob.	5.39	3.89	6.04	4.00
Inad.-Imm.	3.81	1.97	4.00	1.82
Soc. Del.	1.69	1.77	1.60	1.70
Read.-Vocab.	2.75	1.17	2.57	1.14
Read. Comp.	2.46	1.30	2.27	1.34
Total Read.	2.68	1.16	2.51	1.14
Arith. Reas.	2.82	1.21	2.60	1.16
Arith. Fund.	3.21	1.31	2.92	1.33
Total Arith.	3.01	1.27	2.75	1.26

Table IV-6

Means and standard deviations for observations of attending behavior in the three schools (1969-70)

Group	N	Baseline		Intervention Periods						Post		Treatment X Time Interaction		
				I		II		III						
		$\overline{X}$	SD	$\overline{X}$	SD	$\overline{X}$	SD	$\overline{X}$	SD	$\overline{X}$	SD	F	df	P
School A														
Exp: Reg. Class	21	154	47.5	146	61.4	140	63.3		-	171	55.3	0.7	3/108	NS
Exp: Res. Room	21			214	56.6	193	58.4		-			5.9	3/108	.01
Control: Reg. Class	17	162	52.5	150	58.5	131	74.2		-	155	45.2			
School B														
Exp: Reg. Class	26	148	55.1	189	48.4	189	54.4	156	51.2	154	52.3	7.7	4/156	<.01
Exp: Res. Room	26			268	16.3	257	28.4	223	46.6			25.7	4/156	<.01
Control: Reg. Class	15	123	39.2	170	41.0	104	33.7	155	50.4	158	42.0			
School C														
Exp: Reg. Class	19	164	49.5	182	47.3	179	47.5	165	49.4	165	52.7	2.3	4/116	NS
Exp: Res. Room	19			268	29.3	262	28.5	260	33.0			13.7	4/116	<.01
Control: Reg. Class	12	156	52.9	171	40.9	138	39.1	157	54.5	119	48.4			

Table IV-7

Means and SDs of gain scores in years on the
California Achievement Test (1969-70)

	Experimental				Control			
	N	$\overline{X}$	SD	Range	N	$\overline{X}$	SD	Range
School A								
Reading Vocab.	21	.94	.61	0.0 - 2.2	18	.27	.60	-0.6 - 1.4
Reading Comp.		.76	.75	-0.8 - 2.2		.47	.50	-0.1 - 1.4
Total Reading		.78	.52	0.0 - 1.6		.32	.52	-0.3 - 1.3
Arith. Reas.	6	.69	.46	0.3 - 1.5	18	.42	.35	-0.2 - 1.2
Arith. Fund.		1.66	.32	1.2 - 2.0		.32	.44	-0.3 - 1.2
Total Arith.		1.16	.44	0.7 - 1.8		.35	.47	-0.6 - 1.6
School B								
Reading Vocab.	25	.80	.61	0.2 - 2.4	17	.62	.68	-0.5 - 1.9
Reading Comp.		1.11	.80	-0.6 - 2.2		.85	1.09	-2.2 - 2.6
Total Reading		.91	.61	0.1 - 2.3		.64	.79	-1.5 - 1.5
Arith. Reas.	4	1.00	.45	0.6 - 1.6	17	.71	.41	-0.1 - 1.3
Arith. Fund.		1.17	.45	0.6 - 1.7		.70	.82	-1.7 - 1.9
Total Arith.		1.17	.33	0.7 - 1.4		.94	.62	-0.9 - 1.9
School C								
Reading Vocab.	21	.96	.83	0.2 - 3.9	13	.68	.85	-0.5 - 2.1
Reading Comp.		.86	.79	-0.3 - 3.2		.64	.60	-0.5 - 1.8
Total Reading		.88	.77	0.1 - 3.6		.59	.59	-0.1 - 1.4
Arith. Reas.	8	.81	.65	-0.1 - 1.8	13	.79	.77	-0.3 - 2.5
Arith. Fund.		1.18	.53	0.2 - 1.8		.62	.77	-0.2 - 1.6
Total Arith.		.98	.48	0.3 - 1.6		.78	.67	-0.3 - 2.0
Schools Combined								
Reading Vocab.	67	.90	.68		48	.50	.72	
Reading Comp.		.93	.79			.65	.79	
Total Reading		.86	.64			.51	.64	
Arith. Reas.	18	.82	.55		48	.63	.53	
Arith. Fund.		1.34	.49			.54	.66	
Total Arith.		1.09	.42			.68	.58	

Table V-1

Average Number of Words Read
Silently with Comprehension per Minute

Pupil	C.A.	Baseline Period	Pupil-teacher Period	Expected Speed[1]
1	7-8	95	151	131
2	10-3	159	221	176
3	10-8	129	221	181
4	6-10	66[2]	110	105
5	7-9		187	133
6	7-4		90	123

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[1] Prorated from Taylor, Frackenpohl & Pettee (1960).

[2] With individual tutoring.

Table V-2

Distribution for Over and Underachievement in Reading and Arithmetic for Behavior Problem and Normal Boys

		Achievement Level						
		Over			Expected	Under		
Subject	N	Ext.	Mod.	Mild	Level	Mild	Mod.	Ext.
					Behavior Problem Boys			
Reading	130	0	1	1	22	12	29	65
Arithmetic	130	0	0	3	33	10	35	49
					Normal Boys			
Reading	90	1	1	2	36	14	17	19
Arithmetic	90	2	0	1	53	16	13	5

Table V-3

Reading and Arithmetic Skills of Conduct Problem and Withdrawn Children

	Conduct Problem			Withdrawn				
	Grade Equivalent			Grade Equivalent				
Subject	N	$\overline{X}$	SD	N	$\overline{X}$	SD	t	sig
Arithmetic Fund.	34	3.14	1.35	9	3.19	1.39	.10	ns
Arithmetic Reas.	34	2.76	1.23	9	2.86	1.08	.22	ns
Reading Comp.	34	2.31	1.26	9	2.46	1.30	.34	ns
Reading Voc.	34	2.63	1.12	9	2.74	1.00	.27	ns

Table V-4

Frequency of Total Errors by Groups

	Adjustment-Class Errors N=9	Regular-Class Errors N=9	Critical U _ 21
External Errors			
Add/Insert	2	3	41.5
Omissions	2	6	26.0
Phonics	2	6	28.0
Sub/Reversal	6	11	31.5
Internal Errors			
Words Refused	71	1	15.0*
Unrecognizable	68	5	25.0
Total Errors	151	32	1.5**

* P ≤.05 for a one-tailed test

** P ≤.01 for a one-tailed test

Table V-5

Frequency of Errors by Subgroups of Disturbed Children

	I Reg.vs.Adj. N=15	 N=15	 Crit. U_72	II Reg.vs.Withd. N=5	 N=5	 Crit. U_4.5	III Reg.vs.Cond. N=15	 N=10	 Crit. U_44	IV Cond.vs.Withd. N=5	 N=5	 Crit. U_4.5
External Errors												
Add/Insert	2	5	104.0	1	2	10.0	2	3	73.5	0	2	7.5
Omissions	11	26	57.0*	6	13	5.5	11	13	47.5	6	13	4.5*
Phonics	17	20	99.0	8	8	10.5	17	12	69.0	4	8	8.5
Sub/Reversal	10	34	50.0**	9	14	11.0	10	20	28.0**	9	14	10.0
Internal Errors												
Refusals	4	19	78.5	3	2	10.5	4	17	42.0*	16	2	2.0*
Unrecognizable	3	22	80.0	3	19	4.5*	3	3	72.0	3	19	4.5*
Total Errors	47	126	37.5**	30	58	4.0*	47	63	32.5**	33	58	6.0

*P $\leq$ .05 for a one-tailed test.
**P $\leq$ .01 for a one-tailed test.

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Appendix I

Deviant Classroom Behavior Frequency Count--Instructions

Classroom Situation for Observing

Observing should be done in a task situation where the rules are clearly defined. In general, this will be during individual, academic seat work. Activities such as story-time and most group situations generally prove unsuitable because rules tend to be relaxed and unclear. Observations should not be done when there is a prolonged period of individual instructions during which the teacher is seated beside the child since this tends artificially to minimize deviant behavior.

Observing Procedure

The observer must seat himself close enough to the child to be able to hear what the latter is saying and to see what he is doing on his desk without the observer making himself obtrusive. The observer must not interact with the child or the class in any way.

Observe the child (one at a time) for twenty seconds and then rest for ten seconds during which the appropriate symbols can be entered in the cells of the score sheet. Behaviors occurring during this ten second period are never recorded. Thus there are two observations per minute. Presently there are thirty separate cells of observation, thus taking a total observing time of fifteen minutes. Timing must be exact. There is no objection to splitting the observations (i.e., part before recess and part after recess).

The scoring sheet should consist of thirty cells subdivided in half by a dotted horizontal line.

Definitions of Observations

There are three classes of observations: 1) deviant behavior, 2) on task behavior, and 3) teacher contact.

1. Deviant behavior (scored above the dotted line). This is defined as any behavior which contravenes any explicit or implicit rule under which the class or individual child operates. Therefore, it is imperative to determine what the rules are in a given classroom before undertaking any observations. The observer should question the teacher particularly about conditions under which it is permissible for a child to leave his seat and to speak.

When there is any doubt about a particular behavior, mark it non-deviant.

Only one symbol of a given type should appear in a cell though it is permissible to have as many different symbols in the one cell as necessary.

It is helpful to record the deviant behaviors as they occur rather than waiting for the end of the observation period to write these down. If the on task item (see below) is left for the ten second "off" period there will be little danger of getting cells muddled.

Symbol Description

X Out of seat

This is defined as any situation in which the normal seating surface of neither buttock is applied to the child's seat or in which there is movement of his desk or chair so that its ultimate stationary position is altered (thus swinging a seat on its axis or tilting a chair on its legs is excluded). Where the child is performing a permitted out-of-seat activity such as sharpening his pencil (after having gotten permission from the teacher) this would not be marked as out-of-seat behavior except 1) when deviant behavior occurs during the permitted act such as "side trips," looking at things on the teacher's desk, stopping to talk, etc. or 2) when the permitted activity is prolonged beyond a reasonable period of time or altered in some significant way.

→ Physical Contact or Disturbing Others Directly

Any physical contact initiated or reciprocated between the child under observation and another person independent of the intent of the child (aggression or affection). Include here physical contact made with another person by means of an object such as a book held in a hand or an object thrown, or some disturbance of another person or child by the subject in which there is contact not with the other's body but rather with objects about him such as his work, his desk, etc. Examples: grabbing objects or work, knocking objects off the other's desk, destroying his property or pushing his desk.

N Audible Noise

Any non-vocal, non-respiratory noise which is clearly audible, and which is not an integral part of a non-deviant activity. Examples: tapping a pencil, clapping, tapping feet, rattling or tearing papers, throwing a book on a desk, slamming a desk closed, etc.

↷ 90° Turn, Seated

A child must be seated and the turn of the head and/or body must be more than 89°. The desk is used as a reference point. Exception is where the child wishes to attract the teacher's attention and turns, raising his hand to attract attention. A helpful guide here is if the head is parallel to the shoulders, or if the child or the other person looked at is beyond the 90° arc, the turn must be in excess of 89°.

V Vocalization

A vocalization or other respiratory noise such as a whistle which is not task-related and which is not physiological (this includes normal cough or sneeze). Examples: answering teacher without first raising hand, talking to others without permission, muttering which is obviously intended for an audience, swearing, etc. Do not rate as V behavior that which is a direct response to a teacher's question or, in general, when a teacher is with the child except where the content of what is said is clearly deviant, such as stating refusal to do work, putting off obeying instructions, swearing, etc. Do not include working out loud.

I Isolation (i.e., for deviant behavior)

The child has been sent out of the room as a punishment or has been placed in the time-out room. The appropriate below the dotted line (i.e., on-task--off-task symbol in such cases is //); other deviant behaviors which can be noted such as vocalizations, noises, should be recorded along with the I.

ϕ Other Deviant Behavior

Include here behaviors which do not fit easily into a category above and also behaviors which are situational rather than absolutely deviant. For example, engaging in a task other than that which is assigned (reading, instead of doing arithmetic, drawing instead of reading, etc.). Include here also daydreaming. Exceptions: the following are not deviant behaviors: playing with clothes, playing with self, chewing gum, playing with pencil in hand (all other pencil activities such as propping desk up with a pencil or taking a ball-point pencil to pieces, stubbing the point heavily on wood, etc. are deviant).

2. On-task--off-task activity (scored below the dotted line). Definition--This is an attempt to assess the child's attention to the designated task material. Attending is defined as the eyes being applied to the task material or to the teacher for a period of not less than 15 out of the 20 seconds of observation (use your stopwatch!). Exceptions to this are where the child can be clearly seen to be on task even though his eyes are off his work, for example by counting on his fingers, working out loud, etc. It should be noted that while it is possible for deviant behavior--particularly disruptive noises such as tapping the foot or deviant behaviors of short duration (less than five seconds)--to be recorded and yet the child may still get an "on task" check, the converse, namely being off task without some deviant behavior being noted above the line cannot occur. In general when in doubt put a ϕ above the line.

// Activity engaged in some other activity which is either clearly deviant or not the assigned for greater than five seconds.

Sometimes this will become apparent only after some time has elapsed as for example when the teacher comes up and admonishes the child for doing other than that which is assigned. In such circumstances the incorrect cell should then be corrected.

D	Daydreaming--here the child is off task for more than five seconds but does so by daydreaming, staring into space rather than some active endeavor.

This type of behavior is very uncommon in conduct problem children.

3. Teacher contact (scored below the line). Teacher is defined as any adult person who is interacting with the children rather than just observing them. Any contact between teacher and child whether initiated by child or by teacher is scored here. This would include such obvious contacts as talking to the child but also less obvious ones such as gesturing on turning the child's clock on or off. It is permissible to have only one teacher contact noted in a cell.

T	Teacher initiated contact (No instigation on part of child)
t	Child initiated (include both questions, etc. Add teacher responding to deviant behavior)
T & t	Positive contact (judged by what teacher does)
T̸ & t̸	Negative contact (Note: T̸ ought not to occur!)

Note: Recording something above the dotted line for Deviant Behavior, and something below it for on-task behavior are obligatory for every cell. Teacher contact is of course added only when it occurs.

Appendix II

Instructional Material Used in Elementary School Resource Rooms in Reading, Spelling and Arithmetic.

Philadelphia Public Schools
1968 - 1969

Edna Dowdell
John P. Glavin

The following is a summary and listing of materials ordered and utilized in the Resource Room Project conducted in Ferguson, Ludlow and Richmond schools during the school year 1968-1969. An effort has been made to include materials made available by the school district as well as those owned and distributed by the Resource Room Project. Listings have been made separately in the areas of Reading and Arithmetic, and Spelling.

Instructional Material for Reading

The following materials are suggested as core materials to be used in Resource Rooms for teaching the basic reading program and will be supplied by the project administration. It will be the responsibility of the teacher to check to see that the series chosen has not been used with the child at some previous time.

New Skilltext, Charles E. Merrill Books, Inc., 1300 Alum Creek Drive, Columbus, Ohio. 43216.

This is a good developmental program providing practice exercises in work text form that can be adapted to use in 15 minute time segments. Books available for first to sixth grade. First grade book can be used to start non readers in beginning reading if you progress slowly. Teacher made worksheets are available for use with the first book. The materials are consumable but may be available in Philadelphia schools on a non-consumable basis. It is recommended that consumable books be used in the 1st and 2nd grade. Teacher's editions are available.

TITLE	READING LEVEL	PRICE	
		List	Net
Book 1 Bibs 1961	Grade 1	$1.08	.81
Book 2 Nicky 1961	Grade 2	1.08	.81
Book 3 Uncle Funny Bunny 1961	Grade 3	1.08	.81
Book 4 Uncle Ben 1961	Grade 4	1.08	.81
Book 5 Tom Trot 1961	Grade 5	1.08	.81
Book 6 Pat the Pilot 1961	Grade 6	1.08	.81
Teachers Manual Book 1 through 6		1.08	.81

New Practice Reader, Webster Division of McGraw Hill Book Co., Manchester Road, Manchester, Mo. 63011.

This is a good program for grade levels 2-8 and provides graded reading with practice exercises accompanying each story. It also provides consistent practice in comprehension and word attack skills but is somewhat harder than the New Skilltext series published by Merrill. We have found this can be used as follow up to the New Skilltext series if the child has completed a book and is not ready to progress to the next level. It also provides material above the sixth grade level if this is necessary. Answer keys and teachers manuals are available.

TITLE		READING LEVEL	PRICE	
			List	Net
Book A	1960	Grade 2	$1.48	$1.11
Book B	1961	Grade 3	1.48	1.11
Book C	1962	Grade 4	1.60	1.20
Book D	1962	Grade 5	1.60	1.20
Book E	1962	Grade 6	1.60	1.20
Book F	1962	Grade 7	1.60	1.20
Book G	1961	Grade 8	1.60	1.20
Answer Keys Book A through G			.36	.27
Teacher's Manual for Series			.36	.27

Sullivan Associates Programmed Reading Webster Division, McGraw Hill Book Company, Manchester Road, Manchester, Mo. 63011

These are programmed textbooks in a linguistic approach from pre-reading through grade 5 with supplemental story books, word cards, spirit masters and filmstrips as well as teacher's guides and reading tests. We found these books to be appropriate as adjunct material but did not find them to be usable as independent material at the earliest levels. We feel the previously mentioned texts are more suitable as core material due to the attention given to reading comprehension skills and inferential thinking ability. See publishers brochure for detailed information on prices and materials available.

TITLE	READING LEVEL	PRICE	
		List	Net
Prereading The Prereader 1968	Grade 1		.69
Series 1 Book 1-7 1965	Grade 1	$1.80	$1.35
Series 2 Book 8-14 1965	Grade 2	1.80	1.35
Series 3 Book 15-21 1965	Grade 3	1.80	1.35

Reader's Digest New Reading Skill Builder. Readers Digest Services, Inc., Educational Division, Pleasantville, N.Y. 10570.

Readers Digest provides high interest, low vocabulary, supplementary readers designed with accompanying exercises developing comprehension and interpretation. The books are a bit hard for the level on which use is indicated but they are well designed to be broken up into 15 minute work periods. Use is recommended as an alternative series if pupil has been exposed to the New Skilltext and New Practice Reader or to be used as supplementary material after use in one of those series if a child is not ready to progress to the next level. Detailed information on the books available may be obtained from the publisher's brochure. Teacher's manuals are available.

TITLE	READING LEVEL	PRICE
		List
Level 1 - 1^1 Part A and Part B	Grade 1	$ .56
Level 2-6 Part A and Part B	Grade 2-6	.75

The materials listed next*/are high interest, low reading level books which are suggested to be used for greater motivation, as supplementary books, or wherever the reading level of the book more closely approximates the level on which the child is reading. The first three series mentioned are more highly recommended because of the added advantage of having accompanying practice material for some books in the series. Some of these books are available in the Philadelphia schools though they may not all be obtained in this way.

The Jim Forrest Readers published by Harr Wagner Publishing Co., Field Educational Publications, Inc. 609 Mission St., San Francisco, Cal. 94105

These books provide stories of interest to upper grade children, the same characters thoughout the series and intriguing plots in each book. A teacher's manual is included for the series and workbooks are available for those books marked with an asterisk.

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* Including the Readers Digest series

TITLE	READING LEVEL	PRICE	
		List	Net
*Jim Forrest and Ranger Don	Grade 1.7	$2.20	$1.65
*Jim Forrest and the Trapper	Grade 1.7	2.20	1.65
*Jim Forrest and the Ghost Town	Grade 1.8	2.20	1.65
*Jim Forrest and the Bandits	Grade 1.9	2.20	1.63
Jim Forrest and Lightening	Grade 1.9	2.40	1.80
Jim Forrest and Phantom Grater	Grade 2.0	2.40	1.80
Jim Forrest and the Mystery Hunter	Grade 2.2	2.40	1.80
Jim Forrest and the Plane Crash	Grade 2.4	2.60	1.95
Jim Forrest and Dead Man's Peak	Grade 2.6	2.40	1.80
Jim Forrest and the Flood	Grade 2.8	2.40	1.80
Jim Forrest and Lone Wolf Gulch	Grade 3.1	2.40	1.80
Jim Forrest and Woodman's Ridge	Grade 3.2	2.60	1.95
Teacher's Manual		1.00	.75
Practice books, teacher or pupil edition for those marked *		.52	.39

Cowboy Sam Series Benefic Press, 10300 W. Roosevelt Rd., Westchester, Illinois 60153.

These are high interest amusing stories about a cowboy and his ranch hands written on a low reading level. Three levels of difficulty for each reading. level offer flexibility in meeting individual needs. A teacher's manual is available for the series and workbooks may be obtained to accompany those books marked with an asterisk. Some of these books are available in Philadelphia public schools.

TITLE	READING LEVEL	INTEREST LEVEL	PRICE LIST
Cowboy Sam and Big Bill	pp	pp-2	$2.00
Cowboy Sam and Freckles	pp	pp-2	2.00
Cowboy Sam and Dandy	pp	pp-2	2.00
Cowboy Sam and Miss Lily	p	p-3	2.20
*Cowboy Sam and Porky	p	p-3	2.20
Cowboy Sam	p	p-3	2.20
Cowboy Sam and Flop	1	1-4	2.20
*Cowboy Sam and Shorty	1	1-4	2.20
Cowboy Sam and Freddy	1	1-4	2.20
Cowboy Sam and Sally	2	2-5	2.40
*Cowboy Sam and the Fair	2	2-5	2.40
Cowboy Sam and the Rodeo	2	2-5	2.40
Cowboy Sam and the Airplane	3	3-6	2.60
*Cowboy Sam and the Indians	3	3-6	2.60
Cowboy Sam and the Rustlers	3	3-6	2.60
Teachers Manual for Books above			1.00
Work books for books marked *			.60

Sailor Jack Readers Benefic Press, 10300 W. Roosevelt Rd. Westchester, Illinois. 60153.

The Sailor Jack Readers provide books which we found to be extremely motivating to children in the Resource Room program. Many of the books in the series are available in the Philadelphia schools and provide high interest, low reading level material at the very easiest levels. While no published workbooks are provided, teacher made worksheets are available for the books marked with an asterisk. A teacher's guide is provided.

TITLE	READING LEVEL	INTEREST LEVEL	LIST PRICE	Nett Price
Sailor Jack and Homer Pots	pp	pp-2	$2.00	1.50
Sailor Jack and Eddy	pp	pp-2	2.00	1.50
*Sailor Jack	pp	pp-2	2.00	1.50
*Sailor Jack and Bluebell's Dive	p	p-3	2.20	1.65
*Sailor Jack and Bluebell	p	p-3	2.20	1.65
*Sailor Jack and the Jet Plane	P	p-3	2.20	1.65
*Sailor Jack and the Ball Game	1	1-4	2.20	1.65
Sailor Jack's New Friend	1	1-4	2.20	1.65
*Sailor Jack and the Target Ship	2	2-5	2.40	1.80
*Sailor Jack Goes North	3	3-6	2.40	1.80
Teachers Guide for above books			1.00	.75

Dan Frontier Series Benefic Press, 10300 W. Roosevelt Road, Westchester, Illinois. 60153.

Exciting adventures hold the reader's attention in these high interest, low reading level books. We have used these books successfully with some Resource Room pupils and have found many of the books available in the Philadelphia schools. Additional companion recordings are available from the publisher though we have not used them and find the cost of $4.95 to $9.95 per record somewhat prohibitive.

TITLE	READING LEVEL	INTEREST LEVEL	LIST	NET
			PRICE	
Dan Frontier	pp	pp-2	$2.20	$1.65
Dan Frontier and the New House	pp	pp-2	2.20	1.65
Dan Frontier and the Big Cat	p	p-3	2.40	1.80
Dan Frontier Goes Hunting	p	p-3	2.40	1.80
Dan Frontier, Trapper	1	1-4	2.60	1.95
Dan Frontier and the Indians	1	1-4	2.60	1.95
Dan Frontier and the Wagon Train	2	2-5	2.80	2.10
Dan Frontier Scouts With the Army	2	2-5	2.80	2.10
Dan Frontier, Sheriff	3	3-6	2.80	2.10
Dan Frontier Goes Exploring	3	3-6	2.80	2.10
Dan Frontier Goes to Congress	4	4-7	3.00	2.25
Teacher's Manual			1.32	.99

Space Age Books Benefic Press, 10300 W. Roosevelt Road, Westchester, Illinois 60153.

Books in this series are highly appealing to Resource Room pupils though they do not start on as low a reading level as the books in the previously mentioned high interest series. Some of the books are available in Philadelphia schools but no practice material is available to accompany them.

TITLE	READING LEVEL	INTEREST LEVEL	LIST PRICE
Peter, The Rocket Sitter	1	1-4	$2.40
Peter and the Rocket Fishing Trip	1	1-4	2.40
Peter and the Rocket Team	2	2-5	2.40
Peter and the Unlucky Rocket	2	2-5	2.40
Peter and the Big Balloon	2	2-5	2.40
Peter and the Rocket Ship	3	3-6	2.40
Peter and the Two-Hour Moon	3	3-6	2.40
Peter and the Moon Trip	3	3-6	2.40

In addition to the aforementioned materials the following books have been used in certain, Resource Rooms to great advantage.

New Diagnostic Reading Workbook Series, Charles E. Merrill Publishing Co., 1300 Alum Creek Drive, Columbus, Ohio. 43216

These new (1969) consumable workbooks for grades 1 to 6 provide interesting one page stories followed by developmental exercises in comprehension, word mastery and independent thinking. Exercises provide a variety of activities and are easily adapted for use in 10 or 15 minutes time segments. Vocabulary introduction is controlled and a word list appears in the back of first and second level books.

TITLE	READING LEVEL	LIST PRICE	NET PRICE
Mother Goose 1969	Readiness	$ .76	.57
Nip the Bear 1969	Grade 1	.76	.57
Red Deer, the Indian Boy 1969	Grade 2	.76	.57
Scottie and His Friends 1969	Grade 3	.76	.59
Adventure Trails 1969	Grade 4	.76	.57
Explaning Today 1969	Grade 5	.76	.57
Looking Ahead 1969	Grade 6	.76	.57
Answer Keys for each grade			.10 ea.

Gates, Arthur I., Peardon, Celeste C., Reading Exercises, Bureau of Publications, Teachers College, Columbia University, New York, N.Y.

This booklet written on varying levels provides short one page reading exercises adaptable for use in ten or fifteen minutes time blocks with a variety of accompanying questions testing comprehension. They have been utilized in one resource room but would be useful for additional supplementary comprehension development for children weak in this area. They would also be adaptable for use in smaller than 15 minute time blocks if the necessity arose.

LIQUID SPIRIT MASTERS

The following consumable duplicated supplementary material has been provided by the project administrators and has been used to provide practice in related reading skills at various levels.

Reading Thinking Skills Pre Primer Level 1 and Level 2, The Continental Press, Inc., Elizabethtown, Pa. 17022.

These packets of worksheets may be used independently or with teacher guidance to develop skills of organization, inference, relationship and vocabulary. They are sequential and easily adapted to use in 15 minutes time blocks. It is recommended that these materials be used when the pupil has reached the stated independent level of reading rather than instructional level.

TITLE	GRADE	PRICE
Reading Thinking Skills Pre Primer	Level 1 pp^3	$3.50
Reading Thinking Skills Pre Primer	Level 2 p	3.50

Reading Thinking Skills First Reader Level 1 and 2^1 level, The Continental Press, Inc. Elizabethtown, Pa. 17022

These sheets are useful at the 1^2 and 2^1 level but also should be used at independent rather than instructional reading levels. Skills in making inferences, organization, seeing relationships and making judgements are stressed through a variety of activities.

TITLE	LEVEL	PRICE
Reading Thinking Skills	First Reader Level 1	$3.50
Reading Thinking Skills	2^1 Level	$3.50

Additional Reading, Thinking Skills
have been ordered for Levels 3,4, & 5.

Using Good English Grade 5 Semester 1, The Continental Press, Inc., Elizabethtown, Pa. 17022.

Thirty sheets provide sixty lessons in grammar dealing with punctuation usage, parts of speech, abbreviation and similar items. We found these useful with upper grade children who were weak in these areas.

TITLE	GRADE	PRICE
Using Good English	5 (1st Semester)	$3.50

Color Charts and Direct Process Masters, The Instructor Color Charts F.A. Owen Publishing Co., Dansville, N.Y. 14437.

Owen Publishing Co. provides a set of eight color posters with ten related spirit masters to teach color words. These have been extremely useful in teaching beginning readers basic sight words.

TITLE	GRADE	PRICE
The Instructor Color Chart	1	$3.00

Jenn Publications Spirit Masters, 1-598, 1-629, B-193, Jenn Publications, 815-825 E. Market St., Louisville, Ky. 40206.

These individual spirit masters review reading of color words combined with a coloring activity or cross word puzzle and are suitable for use when color words have been learned.

TITLE	LEVEL	PRICE
Jenn Publications Spirit Masters (1-598, 1-629, B-198)	pp-1	11¢ each

Phonics

Both consumable ditto work sheets and a consumable phonics book have been utilized in the teaching of phonics at most levels. It is recommended that workbooks be used on a consumable basis for children in grades 1 and 2 and on a not consumable basis thereafter.

Phonics We Use Lyons and Carnahan, Inc., 407 East 25th Street, Chicago, Illinois 60616.

These books provided on six levels, have been very useful in implementing the phonics program. They are sequential in nature though additional material was found to be necessary in developing mastery of initial and final consonants, blends and vowels. Teacher's editions are available at each level.

TITLE	LEVEL	PRICE	
		List	Net
Phonics We Use Book A	Reading Pre primer & Primer	$ .88	$ .66
Phonics We Use Book B	1^1 or 1^2	$ .88	.66
Phonics We Use Book C	2	1.00	.75
Phonics We Use Book D	3	1.00	.75
Phonics We Use Book E	4	1.00	.75
Phonics We Use Book F	5	1.00	.75
Phonics We Use Book G	6	1.00	.75
Teachers Editions		1.00	.75

Phonics is Fun, Modern Curriculum Press, A subsidiary of Reardon, Baer & Co., 13900 Prospect Rd. Cleveland, Ohio, 44136.

This is an excellent beginning phonics program which gives a variety of practice exercises teaching initital and final consonants and short and long vowels. It is combined with a beginning reading approach which provides three pre primers that are coordinated with the Phonics Workbook and is very useful with beginning readers who have difficulty learning sight words. It can also be used with the 'Stern Structural Reading Program' and the Merrill Linguistic Readers.

TITLE	LEVEL	PRICE	
		List	Net
Phonics is Fun Book 1 (a text workbook)	1.0	$1.24	$ .93
Phonics is Fun Book 2	2.0	1.24	.93
Phonics is Fun Book 3	3.0	1.24	.93
Teacher's Manual and Answer Key (one for each level)	1,2, or 3	2.60	1.95
A Big, Big Man	pp1	$ .88	$ .66
In the Tent	pp2	.92	.69
A Mule On A Kite	pp3	.92	.69

TITLE	GRADE	PRICE List	PRICE Net
First Grade Manual, A (Lesson plans)	Grade 1	$2.40	$1.80
Phonics Workbook, Book A.	Grade 1	1.40	1.05
Answer Key, Book A	Grade 1	.20	.15
Second Grade Manual, B (Lesson plans)	Grade 2	2.00	1.50
Phonics Workbook, Book B.	Grade 2	1.32	.99
Answer Key, Book B	Grade 2	.16	.12
Third Grade Manual, C. (Lesson plans)	Grade 3	2.00	1.50
Phonics Workbook, Book C.	Grade 3	1.24	.93
Answer Key, Book C	Grade 3	.12	.09

Beginning Sounds Level 1, The Continental Press, Inc., Elizabethtown, Pa. 17022

These 24 spirit masters teach nine initial consonants devoting at least two full pages to each consonant. They are valuable for use at the earliest levels of phonics work.

TITLE	LEVEL	PRICE
Beginning Sounds Level 1	K or 1	$3.50

Beginning Sounds Level 2, The Continental Press, Inc., Elizabethtown, Pa. 17022.

Sounds taught at Level 1 are reviewed and eight new sounds are introduced though not at such a slow and thorough rate. Often two consonants are presented on the same page and there is not as much review though the packet is still useful for review and introduction of the new sounds.

TITLE	LEVEL	PRICE
Beginning Sounds Level 2	K or 1	$3.50

Phonics and Word Analysis Skills, Grade 1 (Part 1), The Continental Press, Inc., Elizabethtown, Pa. 17022

The set of 30 spirit masters provides another approach to initial consonants as well as introducing eleven initial consonant blends and four consonant digraphs. Work on the consonant blends four digraphs is meager and would have to be supplemented with additional materials.

TITLE	LEVEL	PRICE
Phonics and Word Analysis Skills	Grade 1	$3.50

Phonics and Word Analysis Skills, Grade 2(Part 1), The Continental Press, Inc., Elizabethtown, Pa. 17022.

This set of 30 spirit masters reviews initial and final consonants, digraphs and blends as well as vowels and adding endings. There is insufficient practice provided to utilize this as the main means of teaching these skills but the material is useful for review.

TITLE	GRADE LEVEL	PRICE
Phonics and Word Analysis Skills	2 (Part 1)	$3.50

Jenn Publications Spirit Masters Jenn Publications, 815-825 E. Market Street, Louisville, Ky. 40206.

Ten spirit masters review twenty initial consonants through coloring and letter completion exercises. Two consonants are presented on each page making the sheets more useful for review than introductory exposure.

TITLE	GRADE	PRICE
Jenn Spirit Masters 1-552 to 1-561	1.0	11¢ each

Jenn Publications Spirit Masters Jenn Publications, 815-825 E. Market Street, Louisville, Ky. 40206.

The following spirit masters deal with a review of final consonants and completion of initial and final consonants in the same word and should be used in conjunction with a sequential phonics book as these things are introduced.

TITLE	GRADE	PRICE
Jenn Spirit Masters B-36 to B-54	2	11¢ each

Jenn Publications Spirit Masters Jenn Publications, 815-825 E. Market Street, Louisville, Ky. 40206

Jenn Publications provides eleven spirit masters dealing with initial consonant digraphs and initial and final consonant blends - including a test at the end. These sheets are appropriate for use at the 2nd grade level or when mastery of these skills becomes necessary in the reading program of the pupil

Jenn Spirit Masters B-55, B-65 Grade 2 Price 11¢ ea.

Jenn Publications Spirit Masters Jenn Publications, 815-825 E. Market Street, Louisville, Ky. 40206.

These 26 vowel sheets teach all the long and short vowels including y used as a vowel through coloring and writing activities. They are easier than the Continental Press Vowell Sheets and should be used prior to them or alternately with them.

TITLE	GRADE	PRICE
Jenn Spirit Masters B-68 to B-90 B-96 to B-98	2	11¢ each

Long & Short Vowels, The Continental Press, Inc. Elizabethtown, Pa. 17022.

This series of spirit masters teaches the five long and short vowel sounds of a, e, i, o, and u plus the additional sounds of double o and ea with tests included at the end. We found these sheets to be more difficult than the Jenn vowel sheets and suggest they be used after that material.

TITLE	GRADE	PRICE
Long & Short Vowels	1 or 2	$3.50

Spelling

In one resource room a number of children received instruction in spelling. The book cited below was found to be extremely useful in this area and is recommended for teaching spelling at any of the levels indicated.

My Word Book, Lyons & Carnehan, 407 E 25th Street, Chicago, Ill. 60616

TITLE	GRADE	PRICE List	PRICE Net
My Word Book 1	1	$1.32	$ .99
My Word Book 2	2	1.32	.99
My Word Book 3	3	1.32	.99
My Word Book 4	4	1.32	.99
My Word Book 5	5	1.32	.99
My Word Book 6	6	1.32	.99
My Word Book 7	7	1.32	.99
My Word Book 8	8	1.32	.99
Teacher's Editions for each of the above		1.32	.99

Many of the above materials as well as those that follow in Mathematics which are available from The Continental Press, Inc. may be previewed by the teacher using the full six box elementary grade catalogue of miniatures provided by the company. This catalogue is available to Resource Room teachers and they are encouraged to look through it at any time. If new material is to be ordered this should be done well in advance of the time it will be needed as it often takes at least 4 - 6 weeks for delivery.

Mathematics

Since the mathematics program in the schools where the resource rooms are located tends largely to be traditional in nature, we have found it expedient to follow this approach in the teaching of arithmetic. Because our pupils are at many varied levels of achievement and in some cases weak only in a particular area at that grade level, it has been more advantageous to compile a sequential course of study from individual work sheets rather than utilizing a pre-planned text. The large majority of material used has been drawn from the sources indicated below. While we did not need them materials on grade levels 1 & 6 are obtainable from these companies.

Number Exercises Milliken Publishing Co., St. Louis, Missouri

Worksheets in basic operations are provided on a sequential basis. Very little attention is given to word problems on the levels we obtained. The sheets can easily be adapted to individual needs and work in 10 or 15 minute time blocks.

Title	Grade	Price
Number Exercises Grade 2 First Part	2^1	$3.25
Number Exercises Grade 2 Second Part	2^2	3.25
Arithmetic Exercises Grade 3 First Part	3^1	3.25
Arithmetic Exercises Grade 3 Second Part	3^2	3.25
Arithmetic Exercises Grade 4 Second Part	4^2	3.25

Building in Numberland The Continental Press, Inc., Elizabethtown, Pa., 17022

This series provides sequential practice in the four basic operations and a brief introduction to fractional parts, measurement, money and Roman numerals. Considerable attention is given to word problems through the reading level which is frequently above that of the children working with this material.

Title	Grade	Price
Building in Numberland Grade 4 1st semester	4^1	$3.25
Building in Numberland Grade 4 2nd semester	4^2	3.25

Using Numbers The Continental Press, Inc., Elizabethtown, Pa. 17022

These sheets provide work similar to the 4th grade sheets with greater emphasis on division, money and fractions. Again approximately 30% of the sheets are devoted to the solving of word problems.

Title	Grade	Price
Using Numbers Grade 5 1st semester	5^1	$3.25
Using Numbers Grade 5 2nd semester	5^2	3.25

Useful Arithmetic Series, The Continental Press, Inc., Elizabethtown Penna. 17022.

Provision for the teaching of money and the words associated with it has been made with the use of two special packets of material designed for this purpose. We utilized the sheets on level 2 and level 3 but found it necessary to give considerable additional practice in reading money words such as penny, dime and dollar.

TITLE	GRADE	PRICE
U.S. Money Level 2	2-4	$3.25
U.S. Money Level 3	2-4	3.25

Jenn Publications Spirit Masters, Jenn Publications, 815-825 E. Market Street, Louisville, Kentucky 40206

This company makes spirit masters available on a single sheet basis in reading and arithmetic. A separate catalogue is published for first, second and third grades and one for intermediate grades. Approximately ten sheets each have been selected in the areas of second grade arithmetic, telling time and modern math and thirty-five sheets at the third grade level. For specific details or the ordering of additional materials the catalogues should be consulted.

Practice Exercises in Arithmetic, Curriculum Planning Committee for Arithmetic Instruction in the Elementary School, Phila. Public Schools, Philadelphia, Pa.

Arithmetic drill books at various levels with accompanying answer guides were used with a number of children to provide necessary practice in basic arithmetic concepts. They were especially useful because they were graded, sequential, could be made self checking and were easily adaptable to 10 or 15 minute time blocks.

TITLE	GRADE	PRICE
Practice Exercises in Arithmetic Book A 1949	2 & 3	
Practice Exercises in Arithmetic Book B 1949	3 & 4	
Practice Exercises in Arithmetic Book C 1962	5	
Practice Exercises in Arithmetic Book D 1966	5 & 6	

The following is a summary and listing of materials ordered and utilized in the Resource Room Project conducted in Ferguson, Ludlow and Richmond elementary schools during the school year 1968-1969.

Listings have been made separately in the areas of language arts and arithmetic and a code has been used to provide information concerning the (a) title, (b) skill area, (c) approximate grade level, (d) format, (e) evaluation with reference to content, design and expense, and (f) price. Publishers have also been indicated.

CODE

SKILL AREA

LANGUAGE ARTS

CW	Color Words
DR	Developmental Reading
HIR	High Interest Reading
PH-IC	Phonics Initial Consonants
PH-FC	Phonics Final Consonants
PH-IBL	Phonics Initial Blends
PH-FDi	Phonics Final Digraphs
SA	Structural Analysis
Sp	Spelling
V	Vowels
D	Dictionary Use
PH-IDi	Phonics Initial Digraphs

GRADE LEVEL

R	Readiness
PP$_1$	First Preprimer
PP$_2$	Second Preprimer
PP$_3$	Third Preprimer
P	Primer
1.2	Grade 1 Month 2
2	Grade 2
3	Grade 3
4	Grade 4
5	Grade 5
6	Grade 6
*	In High Interest Readers Interest Level is in parentheses

EVALUATION

AD	Adjunct: Additional material to be used as supplementary
CO	Core: Provides basics in specific skills
EV	Evaluated in classroom
FE	Future evaluation planned
Li	Limited: according to content (C), design (D), or expense (EX).
NE	Not evaluated in classroom

MATHEMATICS

BO	Basic Operations
M	Money
NW	Number Words
RN	Roman numerals
T	Time
NM	New Math

FORMAT

CON	Consumable
HB	Hard Bound
RE	Reusable
REC	Recording
SB	Soft Bound
Sp.M	Spirit Masters
TAPE	Tape

AVAILABILITY

PS	Available in some Phila. Schools
PR	Project owned material
NPA	Not Presently Available
CC	Courtesy Copies Available for Inspection

TITLE		AVAIL	SKILL	LEVEL	FORMAT	EVAL	PUB	PRICE	
								List	Net
DEVELOPMENTAL READING		P							
New Reading Skilltext	Bibs	PS	DR	PP,1	SB/RE	CO/EV	Merrill	$1.08	$ .81
" " "	Nicky	PS	DR	2	SB/RE	CO/EV	"	1.08	.81
" " "	Uncle Funny Bunny	PS	DR	3	SB/RE	CO/EV	"	1.08	.81
" " "	Uncle Ben	PS	DR	4	SB/RE	CO/EV	"	1.08	.81
" " "	Tom Trott	PS	DR	5	SB/RE	CO/EV	"	1.08	.81
" " "	Pat the Pilot	PS	DR	6	SB/RE	CO/EV	"	1.08	.81
Teacher's Manual Book 1 thru 6 (1 ea. grade)		RR	DR		SB/RE	CO/EV	"	1.08	.81
New Practice Readers	Book A	RR	DR	2	SB/CON	CO/EV	Webster	$1.48	$1.11
" " "	Book B	RR	DR	3	SB/CON	CO/EV	Div. McGraw	1.48	1.11
" " "	Book C	RR	DR	4	SB/CON	CO/EV	Hill	1.60	1.20
" " "	Book D	RR	DR	5	SB/CON	CO/EV	"	1.60	1.20
" " "	Book E	RR	DR	6	SB/CON	CO/EV	"	1.60	1.20
" " "	Book F	RR	DR	7	SB/CON	CO/EV	"	1.60	1.20
" " "	Book G	RR	DR	8	SB/CON	CO/EV	"	1.60	1.20
Answer Keys Book A thru G		RR						.36	.27
Teacher's Manual for Series		RR						.36	.27
Sullivan Programmed Readers									
	Prereading	RR	DR	1	SB/CON	AD/EV	"		.69
	Book 1-7	RR	DR	1	SB/RE	AD/EV	"	1.80	1.35
	Book 8-14	RR	DR	2	SB/RE	AD/EV	"	1.80	1.35
	Book 15-21	RR	DR	3	SB/RE	AD/EV	"	1.80	1.35

TITLE	AVAIL	SKILL	LEVEL	FORMAT	EVAL	PUB.	PRICE	
							List	Net
HIGH INTEREST READING								
Sailor Jack Series								
Sailor Jack and Homer Pots	NPA	HIR	PP(PP-2)	HB/RE	AD/EV	Benetic	$2.00	$1.50
" " and Eddy	NPA	HIR	PP(PP-2)	HB/RE	AD	Press	2.00	1.50
" "	PS	HIR	PP(PP-2)	HB/RE	AD/EV	"	2.00	1.50
" " and Bluebell's Dive	PS	HIR	P (P-3)	HB/RE	AD/EV	"	2.20	1.65
" " and Bluebell	PS	HIR	P (P-3)	HB/RE	AD/EV	"	2.20	1.65
" " and the Jet Plane	PS	HIR	P (P-3)	HB/RE	AD/EV	"	2.20	1.65
" " and The Ball Game	PS	HIR	1 (1-4)	HB/RE	AD/EV	"	2.20	1.65
" Jack's New Friend	PS	HIR	1 (1-4)	HB/RE	AD/EV	"	2.20	1.65
" Jack and the Target Ship	PS	HIR	2 (2-5)	HB/RE	AD/EV	"	2.40	1.80
" " Goes North	PS	HIR	3 (3-6)	HB/RE	AD/EV	"	2.40	1.80
Teacher's Manual For Series	NPA	HIR				"	1.00	.75
The Jim Forrest Readers								
Jim Forrest and Ranger Don	PS	HIR	1.7 (1-6)	HB/RE	AD/EV	Field Educ.	2.20	1.65
" " " The Trapper	NPA	HIR	1.7 (1-6)	HB/RE	AD	Pub. Inc.	2.20	1.65
" " " The Ghost Town	NPA	HIR	1.8 (1-6)	HB/RE	AD	"	2.20	1.65
" " " The Bandits	PS	HIR	1.9 (1-6)	HB/RE	AD/EV	"	2.20	1.65
" " " Lightning	NPA	HIR	1.9 (1-6)	HB/RE	AD	"	2.40	1.80
" " " Phanton Crater	NPA	HIR	2.0 (1-6)	HB/RE	AD	"	2.40	1.80
" " " The Mystery Hunter	NPA	HIR	2.2 (1-6)	HB/RE	AD	"	2.40	1.80
" " " The Plane Crash	NPA	HIR	2.4 (1-6)	HB/RE	AD	"	2.60	1.95
" " " Dead Man's Peak	NPA	HIR	2.6 (1-6)	HB/RE	AD	"	2.40	1.80
" " " The Flood	NPA	HIR	2.8 (1-6)	HB/RE	AD	"	2.40	1.80
" " " Lone Wolf Gulch	NPA	HIR	3.1 (1-6)	HB/RE	AD	"	2.40	1.80
" " " Woodman's Ridge	NPA	HIR	3.2 (1-6)	HB/RE	AD	"	2.60	1.95
Teacher's Manual	NPA				AD	"	1.00	.75

TITLE	AVAIL	SKILL	LEVEL	FORMAT	EVAL	PUB.	PRICE List	Net
HIGH INTEREST READING (cont.)								
The Jim Forrest Readers (cont.)								
Practice Book for Jim Forrest and Ranger Don								
Pupil Edition	RR	HIR	1.7 (1-6)	SB/CON	AD/	Field Educ.	$ .52	.39
Teacher Edition	RR			SB/RE	AD	Pub. Inc.	.52	.39
Practice Book for Jim Forrest and the Trapper								
Pupil Edition	NPA	HIR	1.7 (1-6)	SB/CON	AD	"	.52	.39
Teacher Edition	NPA			SB/RE	AD	"	.52	.39
Practice Book for Jim Forrest and The Ghost Town								
Pupil Edition	NPA	HIR	1.8 (1-6)	SB/CON	AD	"	.52	.39
Teacher's Edition	NPA			SB/RE	AD	"	.52	.39
Practice Book for Jim Forrest and The Bandits								
Pupil Edition	RR	HIR	1.9 (1-6)	SB/CON	AD	"	.52	.39
Teacher's Edition	RR			SB/RE	AD	"	.52	.39
Cowboy Sam Series								
Cowboy Sam and Big Bill	NPA	HIR	PP (PP-2)	HB/RE	AD	Benefic Press	2.00	
" " and Freckles	NPA	HIR	PP (PP-2)	HB/RE	AD	"	2.00	
" " and Dandy	NPA	HIR	PP (PP-2)	HB/RE	AD	"	2.00	
" " and Miss Lily	NPA	HIR	P (P-3)	HB/RE	AD	"	2.20	
* " " and Porky	NPA	HIR	P (P-3)	HB/RE	AD	"	2.20	
" "	NPA	HIR	P (P-3)	HB/RE	AD	"	2.20	
" " and Flop	NPA	HIR	1 (1-4)	HB/RE	AD	"	2.20	
* " " and Shorty	PS	HIR	1 (1-4)	HB/RE	AD	"	2.20	
" " and Freddy	NPA	HIR	1 (1-4)	HB/RE	AD	"	2.20	
" " and Sally	NPA	HIR	2 (2-5)	HB/RE	AD	"	2.40	
* " " and The Fair	PS	HIR	2 (2-5)	HB/RE	AD	"	2.40	
" " and The Rodeo	PS	HIR	2 (2-5)	HB/RE	AD	"	2.40	
" " and The Airplane	NPA	HIR	3 (3-6)	HB/RE	AD	"	2.60	
* " " and The Indians	NPA	HIR	3 (3-6)	HB/RE	AD	"	2.60	
" " and The Rustlers	NPA	HIR	3 (3-6)	HB/RE	AD	"	2.60	
Teacher's Manual for above books	NPA			SB/RE		"	1.00	
Workbooks for books marked *				SB/CON		"	.60	

TITLE		AVAIL.	SKILL	LEVEL	FORMAT	EVAL.	PUB.	PRICE List	PRICE Net
HIGH INTEREST READING (cont.)									
Dan Frontier Series									
Dan Frontier		PS	HIR	PP (PP-2)	HB/RE	AD	Benefic	$2.20	$1.65
Dan Frontier and The New House		NPA	HIR	PP (PP-2)	HB/RE	AD	Press	2.20	1.65
Dan Frontier and the Big Cat		NPA	HIR	P (P-3)	HB/RE	AD	"	2.40	1.80
" " Goes Hunting		PS	HIR	P (P-3)	HB/RE	AD	"	2.40	1.80
" " , Trapper		NPA	HIR	1 (1-4)	HB/RE	AD	"	2.60	1.95
" " , the Indians		PS	HIR	1 (1-4)	HB/RE	AD	"	2.60	1.95
" " and the Wagon Train		NPA	HIR	2 (2-5)	HB/RE	AD	"	2.80	2.10
" " Scouts With The Army		PS	HIR	2 (2-5)	HB/RE	AD	"	2.80	2.10
" " , Sheriff		PS	HIR	3 (3-6)	HB/RE	AD	"	2.80	2.10
" " Goes Exploring		PS	HIR	3 (3-6)	HB/RE	AD	"	2.80	2.10
" " Goes to Congress		PS	HIR	4 (4-7)	HB/RE	AD	"	3.00	2.25
Teacher's Manual								1.32	.99
Space Age Books									
Peter, The Rocket Sitter		NPA	HIR	1 (1-4)	HB/RE	AD	"	2.40	
" and the Rocket Fishing Trip		PS	HIR	1 (1-4)	HB/RE	AD	"	2.40	
" and the Rocket Team		NPA	HIR	2 (2-5)	HB/RE	AD	"	2.40	
" and the Unlucky Rocket		NPA	HIR	2 (2-5)	HB/RE	AD	"	2.40	
" and the Big Balloon		NPA	HIR	2 (2-5)	HB/RE	AD	"	2.40	
" and the Rocket Ship		PS	HIR	3 (3-6)	HB/RE	AD	"	2.40	
" and the Two Hour Moon		PS	HIR	3 (3-6)	HB/RE	AD/EV	"	2.40	
" and the Moon Trip		PS	HIR	3 (3-6)	HB/RE	AD	"	2.40	
Reader's Digest New Reading Skill Builder									
Level 1 Part A	Pupil Edition	PS	HIR	1.6 - 1.8	SB/RE	AD/EV	Reader's	.56	
	Teacher Edition	NPA			SB/RE	AD/EV	Digest	.56	
Level 1 Part B	Pupil Edition	PS	HIR		SB/RE	AD/EV	Ser. Inc.	.56	
	Teacher Edition	NPA			SB/RE	AD/EV	"	.56	
Level 1^+ Part A	Pupil Edition	PS	HIR	1.8 - 1.9	SB/RE	AD/EV	"	.56	
	Teacher Edition	NPA			SB/RE	AD/EV	"	.56	

HIGH INTEREST READING (cont.)

TITLE		AVAIL	SKILL	LEVEL	FORMAT	EVAL.	PUB.	PRICE List	PRICE Net
Reader's Digest New Reading Skill Builder (cont.)									
Level1+ Part B	Pupil Edition	PS	HIR		SB/RE	AD/EV	Reader's	.56	
	Teacher Edition	NPA			SB/RE	AD/EV	Digest	.56	
Level 2 Part A	Pupil Edition	PS	HIR		SB/RE	AD/EV	Ser. Inc.	.75	
	Teacher Edition	NPA			SB/RE	AD/EV	"	.75	
Level 2 Part B	Pupil Edition	PS	HIR		SB/RE	AD/EV	"	.75	
	Teacher Edition	NPA			SB/RE	AD/EV	"	.75	
Level 3 Part A	Pupil Edition	PS	HIR		SB/RE	AD/EV	"	.75	
	Teacher Edition	NPA			SB/RE	AD/EV	"	.75	
Level 3 Part B	Pupil Edition	PS	HIR		SB/RE	AD/EV	"	.75	
	Teacher Edition	NPA			SB/RE	AD/EV	"	.75	
Level 4 Part A	Pupil Edition	PS	HIR		SB/RE	AD/EV	"	.75	
	Teacher Edition	NPA			SB/RE	AD/EV	"	.75	
Level 4 Part B	Pupil Edition	PS	HIR		SB/RE	AD/EV	"	.75	
	Teacher Edition	NPA			SB/RE	AD/EV	"	.75	
Level 5 Part A	Pupil Edition	PS	HIR		SB/RE	AD/EV	"	.75	
	Teacher Edition	NPA			SB/RE	AD/EV	"	.75	
Level 5 Part B	Pupil Edition	PS	HIR		SB/RE	AD/EV	"	.75	
	Teacher Edition	NPA			SB/RE	AD/EV	"	.75	
Level 6 Part A	Pupil Edition	PS	HIR		SB/RE	AD/EV	"	.75	
	Teacher Edition	NPA			SB/RE	AD/EV	"	.75	
Level 6 Part B	Pupil Edition	PS	HIR		SB/RE	AD/EV	"	.75	
	Teacher Edition	NPA			SB/RE	AD/EV	"	.75	

TITLE	AVAIL.	SKILL	LEVEL	FORMAT	EVAL.	PUB.	PRICE List	PRICE Net
DEVELOPMENTAL READING (cont.)								
New Diagnostic Reading Workbook Series								
Mother Goose (1969)	NPA	DR	Readiness	SB/CON	CO/NE	Ch. E.Merrill	$ .76	$ .57
Nip the Bear	NPA	DR	Grade 1	SB/CON	CO/NE		.76	.57
Red Deer, the Indian Boy	NPA	DR	Grade 2	SB/RE	CO/EV	"	.76	.57
Scottie and His Friends	NPA	DR	Grade 3	SB/RE	CO/NE	"	.76	.57
Adventure Trails	NPA	DR	Grade 4	SB/RE	CO/NE	"	.76	.57
Exploring Today	NPA	DR	Grade 5	SB/RE	CO/NE	"	.76	.57
Looking Ahead	NPA	DR	Grade 6	SB/RE	CO/NE	"	.76	.57
Answer keys for each grade	NPA				CO/NE	"		.10
Gate & Peardon Reading Exercises								
Level B	NPA	DR	Grade 2	SB/RE	CO/EV	Bur. of Pub. Teach. Coll. Col. Uni.		
Reading Thinking Skills Pre Primer Level 1	RR	DR	PP^3	Sp.M	AD/EV	Cont. Press	3.50	
Reading Thinking Skills Pre Primer Level 2	RR	DR	P	Sp.M	AD/EV	"	3.50	
Reading Thinking Skills First Reader Level 1	RR	DR	1^2	Sp.M	AD/EV	"	3.50	
Reading Thinking Skills First Reader Level 2	RR	DR	2^1	Sp.M	AD/EV	"	3.50	
Using Good English	NPA	DR	5^1	Sp.M	AD/EV	"	3.50	
The Instructor Color Charts	RR	CW	1.0	Sp.M	AD/EV	Owen Pub. Co.	3.00	
Jenn Spirit Masters on Colors 1-598, 1-629, B 193,	RR	CW	1 and 2	Sp.M	AD/EV	Jenn	11¢ master	

TITLE	AVAIL.	SKILL	LEVEL	FORMAT	EVAL.	PUB.	PRICE	
							List	Net
PHONICS								
Phonics We Use Series								
Phonics We Use Book A Pupil Edition	RR	PH-IC	PP+P	SB/CON	CO/EV	Lyons & Carn.	$ .88	$ .66
" " " " A Teacher Edition	RR			SB/RE			1.00	.75
" " " " B Pupil Edition	RR	PH-IC, FC,IBL	1^1 or 1^2	SB/CON	CO/EV	"	.88	.66
" " " " B Teacher Edition	RR			SB/RE		"	1.00	.75
" " " " C Pupil Edition	RR	PH-IC, FC,SA, IBL,Di,V	2	SB/CON	CO/EV	"	1.00	.75
" " " " C Teacher Edition	RR			SB/RE		"	1.00	.75
" " " " D Pupil Edition	RR	PH-C,BI, DI,V,SA	3	SB/CON	CO/EV	"	1.00	.75
" " " " D Teacher Edition	RR			SB/RE		"	1.00	.75
" " " " E Pupil Edition	RR	PH-C,BI, DI,V,SA	4	SB/RE	CO/EV	"	1.00	.75
" " " " E Teacher Edition	RR			SB/RE		"	1.00	.75
" " " " F Pupil Edition	RR	PH-C,BI, DI,V,SA,D	5	SB/RE	CO/EV	"	1.00	.75
" " " " F Teacher Edition	RR			SB/RE		"	1.00	.75
" " " " G Pupil Edition	RR		6	SB/RE	CO/EV	"	1.00	.75
" " " " G Teacher Edition	RR					"	1.00	.75
Phonics is Fun								
Phonics is Fun Book 1	CC	PH-IC-FC	1.0	SB/CON	CO/FE	Mod. Curr. Press	1.24	.93
" " " " 2	CC	PH	2.0	SB/CON	CO/FE		1.24	.93
" " " " 3	CC	PH	3.0	SB/CON	CO/FE		1.24	.93
Teacher's Manual and Answer Key (1 each level)	CC		1,2,3	SB/RE		"	2.60	1.95
A Big, Big Man	CC	DR	PP^1	SB/RE	CO/FE	"	.88	.66
In The Tent	CC	DR	PP^2	SB/RE	CO/FE	"	.92	.69
A Mule on A Kite	CC	DR	PP^3	SB/RE	CO/FE	"	.92	.69

TITLE	AVAIL.	SKILL	LEVEL	FORMAT	EVAL.	PUB.	PRICE List	 Net
PHONICS (Cont.)								
First Grade Manual A (Lesson plans)	CC	PH	Grade 1	SB/RE	CO/FE	Modern		
Phonics Workbook, Book A	CC	PH	" 1	SB/CON	CO/FE	Curr.		
Answer Key Book A	CC					Press		
Second Grade Manual B (Lesson plans)	CC	PH	" 2	SB/RE	CO/FE	"		
Phonics Workbook Book B	CC	PH	" 2	SB/CON	CO/FE	"		
Answer Key, Book B	CC							
Third Grade Manual, C (Lesson plans)	CC	PH	" 3	SB/RE	CO/FE			
Phonics Workbook Book C	CC	PH	" 3	SB/CON	CO/FE			
Answer Key, Book C	CC							
Beginning Sounds Level 1	RR	PH-IC	K or 1	Sp.M/ CON	CO/EV	Cont. Press	$3.50	
Beginning Sounds Level 2	RR	PH-IC	K or 1	Sp.M CON	CO/EV	"	$3.50	
Phonics & Word Analysis Skills Grade 1 (Part 1)	RR	PH-IC, IBL,IDi	Grade 1	Sp.M CON	CO/EV	Cont. Press	$3.50	
Phonics & Word Analysis Skills Grade 2 (Part 1)	RR	PH-IC, IBL,DI, SA,V	Grade 2	Sp.M CON	CO/EV	"	$3.50	
Jenn Publication Spirit Masters 1-552 to 1-561	RR	PH-IC	1.0	Sp.M CON	CO/EV	Jenn Pub.	11¢ ea	
Jenn Publication Spirit Masters B-36 to B-54	RR	PH-FC	2	Sp.M CON	CO/EV	Jenn Pub.	11¢ ea	
Jenn Publication Spirit Masters B-55 to B-65	RR	PH-IDi, IBL,FBL	2	Sp.M CON	CO/EV	Jenn Pub.	11¢ ea	
Jenn Publication Spirit Masters B-68 to B-90, B96-B98	RR	PH-V	2	Sp.M CON	CO/EV	Jenn Pub.	11¢ ea	

TITLE	AVAIL.	SKILL	LEVEL	FORMAT	EVAL	PUB.	PRICE List	PRICE Net
PHONICS (Cont.)								
Long and Short Vowels	RR	PH-V	1 or 2	Sp.M CON	CO/EV	Cont. Press	$3.50	
SPELLING								
My Word Book Book 1	RR	Sp.	1	SB/CON	CO/EV	Lyons &	1.32	.99
" " " " 2	RR	Sp.	2	SB/CON	CO/EV	Carn.	1.32	.99
" " " " 3	RR	Sp.	3	SB/CON	CO/EV	"	1.32	.99
" " " " 4	RR	Sp.	4	SB/RE	CO/EV	"	1.32	.99
" " " " 5	RR	Sp.	5	SB/RE	CO/EV	"	1.32	.99
" " " " 6	RR	Sp.	6	SB/RE	CO/EV	"	1.32	.99
" " " " 7	RR	Sp.	7	SB/RE	CO/EV	"	1.32	.99
" " " " 8	RR	Sp.	8	SB/RE	CO/EV	"	1.32	.99
Teachers Editions for each of the above							1.32	.99
ARITHMETIC								
Number Exercises Grade 2 First Part	RR	BO	2^1	Sp.M/CON	CO/EV	Milliken	3.25	
Number Exervises Grade 2 Second Part	RR	BO	2^2	Sp.M/CON	CO/EV	Pub. Co.	3.25	
Arithmetic Exercises Grade 3 First Part	RR	BO	3^1	Sp.M/CON	CO/EV	"	3.25	
Arithmetic Exercises Grade 3 Second Part	RR	BO	3^2	Sp.M/CON	CO/EV	"	3.25	
Arithmetic Exercises Grade 4 Second Part	RR	BO	4^2	Sp.M/CON	CO/EV	"	3.25	
Building in Numberland Grade 4 1st semester	RR	BO	4^1	Sp.M/CON	CO/EV	Cont.	3.25	
Building in Numberland Grade 4 2nd semester	RR	BO	4^2	Sp.M/CON	CO/EV	Press	3.25	
Using Numbers Grade 5 1st semester	RR	BO	5^1	Sp.M/CON	CO/EV	"	3.25	
Using Numbers Grade 5 2nd semester	RR	BO	5^2	Sp.M/CON	CO/EV	"	3.25	
Useful Arithmetic Series								
U.S. Money Level 2	RR	M	2-4	Sp.M/CON	CO/EV	"	3.25	
U.S. Money Level 3	RR	M	2-4	Sp.M/CON	CO/EV	"	3.25	

TITLE	AVAIL.	SKILL	LEVEL	FORMAT	EVAL.	PUB.	PRICE List	PRICE Net
ARITHMETIC (Cont.)								
Jenn Publication Spirit Masters 1-151, B-341, B-342, C-166 to C-168	RR	T	1-3	Sp.M/CON	CO/EV	Jenn. Pub.	11¢ ea	
Jenn Publications Spirit Masters M12, M16, M17, M18, M67	RR	NM	3	Sp.M/CON	CO/EV	"	11¢ ea	
Jenn Publications Spirit Masters C96, C122, C123, C127 to C148	RR	BO	3	Sp.M/CON	CO/EV	"	11¢ ea	
Jenn Publications Spirit Masters B280, B316 to B318, B330, B360, B361	RR	BO	2	Sp.M/CON	CO/EV	"	11¢ ea	
Jenn Publications Spirit Masters B448	RR	NW	2	Sp.M/CON	CO/EV	"	11¢ ea	
Jenn Publications Spirit Masters C177, C179, C181 to C187, C190	RR	BO	3	Sp.M/CON	CO/EV	"	11¢ ea	
Practice Exercises in Arithmetic Book A (1949)	PS	BO	2 & 3	SB/RE	AD/EV	Curr. Plan. Committee PS		
Practice Exercises in Arithmetic Book B (1949)	PS	BO	3 & 4	SB/RE	AD/EV			
Practice Exercises in Arithmetic Book C (1962)	PS	BO	5	SB/RE	AD/EV	"		
Practice Exercises in Arithmetic Book D (1966)	PS	BO	5 & 6	SB/RE	AD/EV	"		